SEP 1941
(DUPLICATE)

The JOURNAL of the Florida Medical Association, Inc.

OWNED AND PUBLISHED BY THE FLORIDA MEDICAL ASSOCIATION, INC.

VOLUME XXVIII
No. 2

Jacksonville, Florida, August, 1941

Yearly Subscription, $3.00
Single Copy, 30c

CONTENTS

Sporotrichosis ..... Elmo D. French, M. D., Miami 61

Treatment of Injuries of the Hand
M. Paul Travers, M. D., Miami Beach 66

Cardiac Arrhythmias ..... J. W. Annis, M. D., Lakeland 71

A Review of Some of the Drugs Commonly Used in Urology
Alvin L. Mills, M. D., St. Petersburg 78

Treatment of Gonorrhea with Sulfanilamide
H. J. Ireland, M. D., New York, and C. Lippow, M. D., Miami Beach 82

The Value of Intrapleural Pneumonolysis in Artificial Pneumothorax Therapy in Pulmonary Tuberculosis
Thomas C. Black, M. D., Orlando 84

Editorials: Your District Meeting; Danger of Eye Injuries from Blasting Caps 87

Chattahoochee Valley Medical Society 88

Examinations for Medical Positions Announced by Civil Service Commission 88

Sulfanilamide Effective Against Flare-ups of Rheumatic Fever .. 88

New Test for Determining Adequacy of Connecting Varicose Veins 89

Births, Marriages and Deaths 89

State News Items 89

Component County Societies 90

Abstract Department 92

Books Received 92

Woman's Auxiliary 94

Advertisers' Notes 96

State and Sectional Meetings 98

Component Societies by Districts 99

NEXT SESSIONS

American Medical Association, Atlantic City, 1942
Florida Medical Association, Palm Beach, April 13-15, 1942
Southern Medical Association, St. Louis, November 10-13, 1941

Entered as second-class matter under Act of Congress of March 3, 1879, at the post office at Jacksonville, Florida, October 23, 1924

Petrolagar*...

As a Bland Cleansing Enema

• The effect of a Petrolagar cleansing enema is to soften thoroughly the inspissated stool, and help establish a complete, comfortable bowel movement. Petrolagar serves this purpose well because it is miscible with water, a virtue that enables an even dissemination of minute oil globules throughout the residue in the colon.

The Petrolagar cleansing enema is preferable to irritating soap solutions in either the home or the hospital, because of its gentle, but thorough softening action.

Consider the routine use of the Petrolagar cleansing enema in the hospital, postoperatively or in obstetrical cases, where normal bowel habits are temporarily disturbed.

How to use: Mix 3 ounces of Petrolagar Plain with water sufficient to make one pint to one quart, as desired, and administer by gravity. For retention enema administer at body temperature.

*Petrolagar—*The trademark of Petrolagar Laboratories, Inc., brand emulsion of mineral oil . . . Liquid petrolatum 65 c.c. emulsified with 0.4 gm. agar in a menstruum to make 100 cc.*

Petrolagar Laboratories, Inc. • 8134 McCormick Boulevard • Chicago, Illinois

THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION
PUBLISHED MONTHLY

Volume XXVIII | Jacksonville, Florida, August, 1941 | Number 2

SPOROTRICHOSIS

Report of a Case

Elmo D. French, M. D.
Miami

Sporotrichosis is a disease produced by one of several species, or one of several varieties of the same species, of fungus of the genus Sporotrichum. This disease is more prevalent in the Mississippi and Missouri valleys of this country and in France than elsewhere, although it has been reported in widely separated sections of the United States and in most foreign countries.

Schenck[1] first reported sporotrichosis in the United States in 1898, and the organism he isolated was again isolated in 1900 by Hektoen and Perkins.[2] They named this organism Sporothrix schencki, a term later changed to Sporotrichum schencki. De Beurmann and Ramond[3] in 1903 reported sporotrichosis in France, and Matrachot and Ramond[3] classified the causative organism as of a distinct species which they termed Sporotrichum beurmanni.

The clinical, pathologic and bacteriologic studies of de Beurmann[3] and of Gougerot[4] in France have contributed most to the knowledge of the disease. Among the species pathogenic for man, S. schencki occurs most frequently in this country and S. beurmanni elsewhere. There are many species of the genus Sporotrichum, and while other species have been reported as human pathogens, their pathogenicity is seriously questioned.

S. schencki and S. beurmanni are found on many types of vegetation, on a number of domestic and laboratory animals and on insects. Although usually existing as saprophytes, they at times give rise in animals to disease. At ordinary temperatures they grow readily on a variety of culture media in the open air and are resistant to sunlight; hence even contaminated soil is a possible source of infection.

The majority of reported cases of human sporotrichosis have resulted from infection by the causative microorganisms present on live or dead vegetation and have followed injury of the skin or mucous membranes. A number of cases have resulted from the prick of the barberry thorn. Infection caused by this fungus has, however, occurred after the bite of an animal or the sting of an insect, and experimentally the organism has been shown to be capable of penetrating the intestinal mucosa.

In sharp contrast to the many proved possible sources of infection is the rarity of the disease. Apparently man is not a favorable host to the parasite.

Sporotrichosis is usually amenable to treatment with iodides even though the disease may have existed for many years. Its importance lies in the necessity of differentiating it from more frequently described diseases which are often less amenable to treatment, but which it closely simulates. It is especially apt to be mistaken for tuberculosis, ecthyma and syphilis, and at times for tularemia and for other mycoses. Failure to diagnose sporotrichosis may lead to unnecessary loss of occupation, to protracted invalidism, to false stigma of serologically negative syphilis and even to disastrous surgery. Dr. Howard Hailey of Atlanta, in a personal communication, cited an instance in which a patient died following amputation of a hip joint diseased with sporotrichosis. The patient was a man 42 years of age, and his history indicated he had suffered with the disease for thirty-nine years.

Four chief clinical varieties of sporotrichosis have been described:

1. A localized lymphangitic type.
2. A disseminative gummatous type, which may be subdivided into ulcerated, nonulcerated, single or multiple abscessed and mixed groups.
3. A dermic and epidermic type.
4. An extracutaneous type affecting the mucous membranes, bones, viscera and central nervous system.

Features common to all clinical types are chronicity and polymorphism of the disease and

---

With the laboratory assistance of Fred D. Weidman, M. D., University of Pennsylvania.

Read before the Sixty-Eighth Annual Meeting of the Florida Medical Association, held in Jacksonville, April 28, 29 and 30, 1941.

of the individual lesions, and the usual preservation of a good state of health.

I am aware of only one instance in which sporotrichosis originating in Florida has been reported up to the present time. Dr. William M. Davis of St. Petersburg, in a personal communication, described a case presented by him in 1938, which he diagnosed clinically as sporotrichosis without proving the diagnosis through culture of the organism. In this case cure was effected by administration of iodides. From Dr. Davis' description, his case was of the same localized lymphangitic clinical type as the one I now report in which the organism causing the disease was isolated from the lesion.

REPORT OF CASE

S. K., a negro-Indian woman aged 57, applied Nov. 6, 1940 to the Dermatological Department of the Miami City Clinic for treatment, complaining that five weeks previously a painful sore had appeared on the back of the right hand. She recalled no injury to the hand, but the sore had enlarged rapidly; soon lumps had appeared in the neighborhood of the sore and, later, on the forearm and arm.

EXAMINATION: On the dorsum of the right hand between the first and second metacarpals was a dime-sized verrucous lesion surrounded by a reddened edematous zone in which were a variable number of small papules and nodules. Extending from this site lateroanteriorly on the forearm and medially up the arm to the axilla, was a continuous cordlike linear tract. Along the course of this tract were multiple pea to hazelnut-sized nodules varying in consistency from firm to centrally soft in the largest nodule. There was little sensitivity to touch. The epitrochlear and axillary lymphatic glands were not enlarged. General examination disclosed no additional complaints. The patient was well nourished. There was no elevation of temperature.

LABORATORY EXAMINATION: The blood count was normal. The Kahn test gave no evidence of syphilis. One of the nodules at the periphery of the original lesion was removed for biopsy. The fluctuating center of the largest nodule, located on the forearm, was punctured, and the viscid yellowish fluid which exuded was transferred to a nutrient agar medium for culture. The specimen for biopsy and the culture were submitted to Dr. Weidman for examination. The following is a partial report of his findings:

"Summary and Discussion: Only one thing is certain, namely, that this is a specific infectious granuloma. The vascular hyperplasia and the character of the walls of the cells strongly suggest syphilis, and the granulomas, too, are compatible with that idea. The granulomatous changes could also be those of sporotrichosis, even a pseudoepitheliomatous hyperplasia. This is, however, a very early lesion. Certainly tuberculosis can be eliminated in view of the rapid development of the lesion, and the histology eliminates actinomycosis. There thus remain only syphilis and sporotrichosis for consideration, and considered all in all, the writer favors the latter. Special stains are being employed, but with no high hopes, and in any event cultures should be taken.

FIG. 1. *Sporotrichosis. Localized lymphangitic type. Causative organism was cultured from nodule just below the cubital fossa.*

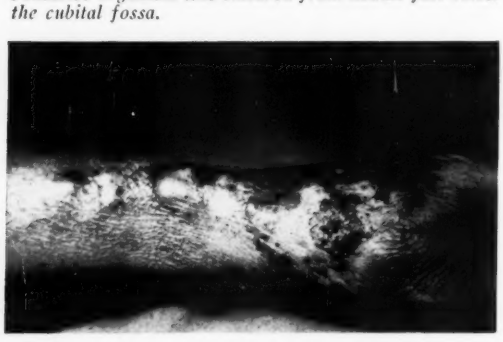


FIG. 2. *Inoculation "chancre." Suture indicates site of lesion excised for biopsy.*

FIG. 3. *Gumma, owing to Sporotrichum schencki, showing location of the deep infiltration. The highly magnified view which follows was taken from the minute circumscribed focus at the lowermost edge of the section (X25).*

"Cultures: From the pure culture supplied by Dr. French subcultures were planted on Sabouraud's test medium and conservation medium, and in glucose bouillon hanging drop.

"Test Medium: This was a modification known as Pennsylvania medium. (Parke and Williams, *Pathogenic Microorganisms,* Lea & Febiger, 11th edition, 1939, p. 803.) Growth became visible within four days; it was faintly brown even at this early stage. At no time did it exhibit any pasty qualities suggestive of a species of yeast fungi. Instead, the surface was dull and delicately fuzzy. Within three weeks colonies measured 3 by 2 cm. The centers were elevated and delicately cerebriform. The peripheral zone was brownish gray. The underlying medium was definitely discolored brown and was evidently penetrated to a goodly distance by subsurface mycelium.

"Conservation Medium: Surface growth was confined to a thin, delicately filamentous growth 1 cm. in diameter. It was faintly creamy yellow; the underlying medium was not discolored, but was infiltrated by subsurface mycelium all the way to the back wall of the tube, a distance of some 6 or 8 mm.

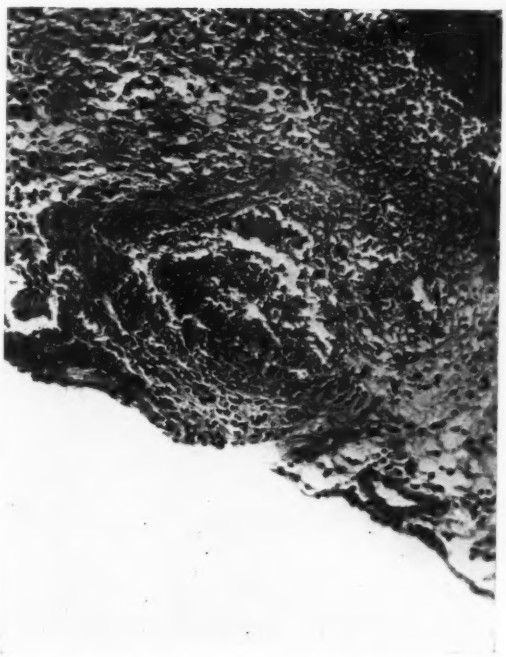


FIG. 4. *Characteristic gumma. The minute tuberculoid granuloma lay at the lowest edge of the section shown in the preceding figure. The suppurative traits of sporotrichosis are reflected in the polymorphonuclear leukocytes included in the granuloma. (X256).*

"*Hanging Drop Preparation*: At three weeks the mycelium was delicate and comparatively frequently branching. Upon it enormous numbers of conidia were arranged. They occurred in smaller or larger clusters, some of which were enormous. In addition, they grew as massive cuffs along the sides of hyphae, sometimes along considerable stretches. The conidia were small and pyriform.

"The features described above are those of S. schencki. The masses of conidia, as arranged in the thick, cufflike manner, have been held in some quarters to indicate a separate species, namely S. beurmanni. It is the consensus, however, that only one species is concerned, namely S. schencki."

DIAGNOSIS: The disease was diagnosed as a localized lymphangitic type of sporotrichosis.

TREATMENT AND RESULTS: During the first week potassium iodide 2 Gm. a day was administered by mouth. The dose was increased to 4 Gm. daily during the second and third weeks, by the end of which time only a slightly roughened scar at the initial site of inoculation and a pigmented skin along the previously involved lymphatic tract could be detected. Treatment with the iodide was then continued for three months in reduced dosage. There has been no further observed evidence of the disease.

COMMENT

While culture of the organism is proof of the diagnosis, nevertheless, if, because of the inaccessibility of the lesions or for other reasons, this may not be possible, additional diagnostic tests for sporotrichosis are at times helpful. The following have been described:

The sporoagglutination test of Widal and Abrami is analogous to the microscopic serodiagnosis of typhoid fever. The serums of patients with sporotrichosis will agglutinate suspensions of the characteristic spores in dilutions of from 1 to 150 to 1 to 800, whereas normal serums will not agglutinate a suspension of the spores in dilutions higher than 1 to 50. This test may be utilized either for diagnosis or as an indication of the necessity of continuing treatment in a given case.

Cutaneous sensitization tests with extracts of sporotrichin have been attempted, but it is said the tests are not specific for the organism.

Intraperitoneal inoculation into the mouse or male rat results in a characteristic orchitis from which the organism can be recovered.

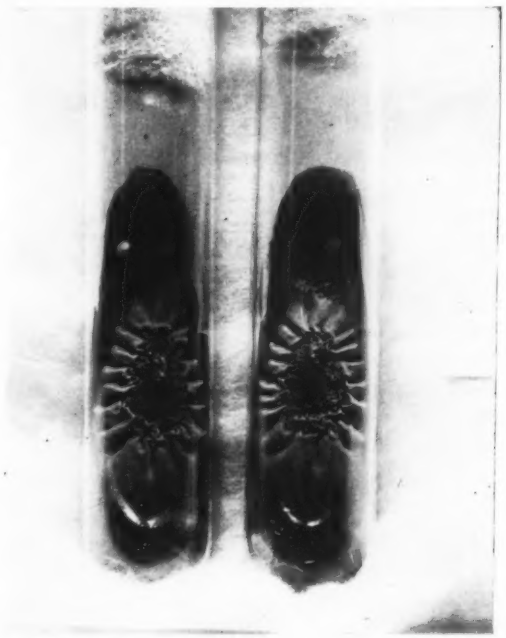


FIG. 5. *Sporotrichum schencki. Colonies four weeks old. Pennsylvania medium.*

This experiment would be useful in proving the injected organisms pathogenic. As inoculation of guinea pigs is without results, its failure would help to exclude tuberculosis.

SUMMARY

The distribution and history of sporotrichosis, the usual sources from which the parasites causing the disease are derived, and the manner in which infection occurs are briefly described. The importance of recognizing the disease is emphasized, and the usually described clinical types in which it manifests itself are mentioned.

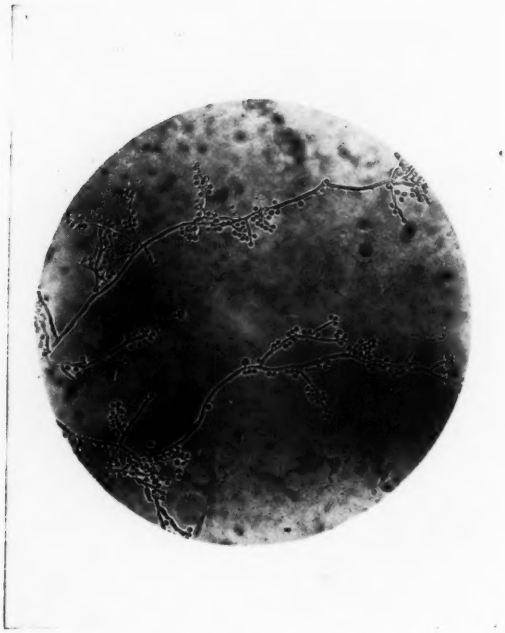


FIG. 6. *Sporotrichum schencki. Hanging drop culture four weeks old. The clustering of conidia into groups of three or four or more is of diagnostic value.*

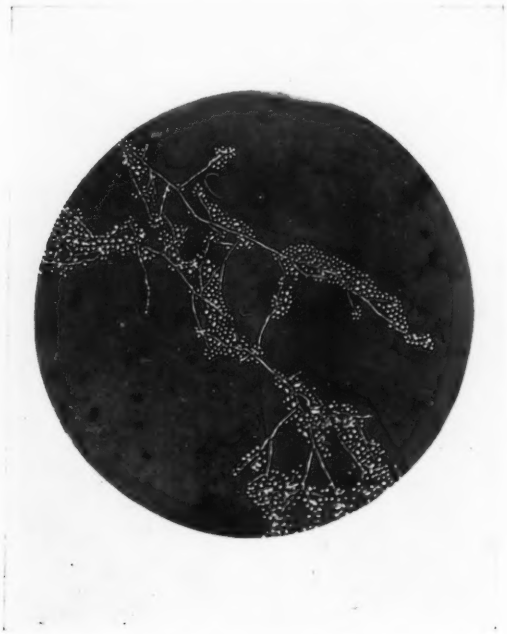


FIG. 7. *Sporotrichum schencki. Hanging drop culture four weeks old. Masses of conidia develop around hyphae in some strains.*

There follows the report of a case of sporotrichosis originating in Florida, with the clinical and histologic findings and the cultural and microscopic description of the organism isolated from one of the lesions it had caused. Treatment with iodides resulted in cure. Additional laboratory tests for sporotrichosis are discussed briefly.

BIBLIOGRAPHY

1. Schenck, B. R.: On Refractory Subcutaneous Abscesses Caused by Fungus, Possibly Related to the Sporotrichia, Johns Hopkins Hosp. Bull. **9**:286-290, 1898.

2. Hektoen and Perkins: Refractory Subcutaneous Abscesses Caused by Sporothrix Schencki; a New Pathogenic Fungus, J. Exper. Med. **5**:77 (Oct. 1) 1900.

3. de Beurmann, L.: On Sporotrichosis, Brit. M.J. **2**:289-296 (July-Dec.) 1912.

4. Gougerot, H.: Sporotrichosis, Nouvelle Pratique Dermatologique **2**:485-526, Paris, Masson and Co., 1936.

5. Foerster, H. R.: Sporotrichosis; An Occupational Dermatosis, J.A.M.A. **87**:1605-1609 (Nov. 13) 1926.

6. Jacobson, H. P.: Fungus Diseases; A Clinico-Mycological Text, Baltimore: Charles C. Thomas, 1932.

7. Lewis, G. M.: An Introduction to Medical Mycology, Chicago: The Year Book Publishers, 1939.

---

602 Huntington Bldg.

DISCUSSION

Dr. Lauren M. Sompayrac, Jacksonville:

I think Dr. French is reporting the first proved case of sporotrichosis in Florida. He is to be commended for his detailed study of this case. It leaves but little room for discussion.

According to Jacobson, less than 200 instances of infection have been recorded in this country, and only 4 cases in which the diagnosis was proved have been reported from New York.

I believe this disease deserves discussion in regard to the differential diagnosis inasmuch as it is frequently confused with other diseases. Culture is the only definite method of diagnosis. The clinical manifestations resemble many varieties of granuloma. I should like to stress the importance of exclusion of two of the most confusing and at the same time most serious diseases, namely, tuberculosis and syphilis.

A syphilitic chancre or gumma may be suggested when the initial lesion alone is present. Absence of regional adenopathy and negative results from dark field illumination and serologic examination aid in the diagnosis, but diagnosis by cultural means should here be definitely established.

Tuberculosis develops more slowly, lesions of this character ordinarily occurring in butchers and in patients with foci elsewhere. The pus is usually not so thick or profuse as in sporotrichosis, and the reaction to a high dilution of tuberculin is positive.

Clinical diagnosis of sporotrichosis is difficult, and such a diagnosis should always be backed by bacteriologic confirmation before the more serious mycotic diseases or other clinically similar diseases are dismissed. Dr. French cited one of the fatal mistakes, that of failure to get a culture. There have been others I am sure. The classification of this disease into four chief clinical varieties is indicative of its polymorphism.

The members of the Association are indebted to the essayist. We have had our minds refreshed on a comparatively rare disease which nevertheless should always be considered in dealing with an atypical granulomatous process. Dr. Weidman has done much to clarify the various types of mycotic infection. Only when the condition is typical is it possible to make a clinical diagnosis of sporotrichosis.

Because of its benignity and the disastrous results of a misguided therapeutic approach, this disease, which responds so well to simple medication, deserves a place in the differential diagnosis of granulomatous conditions.

Dr. A. B.Litterer, Miami:

Dr. French has thoroughly covered the subject of sporotrichosis of the skin, and little can be added. This discussion will, however, be confined to sporotrichosis in general. Although sporotrichosis of the skin and subcutaneous tissue is considered a rare disease, it is not so uncommon as to cause one to disregard its possibility when lesions of the nature described are encountered. With such a widespread source of infection by the causative microorganism, it behooves one to be on the alert in recognizing the condition for failure to do so might result in loss of occupation to the patient, much discomfort and even unnecessary surgical intervention. Since this disease is readily amenable to proper treatment, much embarrassment to the physician may be avoided if a proper diagnosis is made by the use of the simple diagnostic procedures now available.

Far less frequently observed are those cases in which the mucous membranes, eyes, bones, joints and muscles are involved. In all probability the proximity of these structures to the site elected by the organism causing this infection, namely, the skin and subcutaneous tissue, doubtless accounts for their involvement. With the fundamental information as to the nature of this disease available from the exhaustive studies of the French, it is astonishing that visceral complications are considered such a rarity. Although the lung is the most common organ attacked, only 7 cases of pulmonary involvement have been reported since 1915. The other visceral complications reported to date include those of the central nervous system, large intestine, kidney and spleen.

One is confronted with two different views when considering the distribution of the cutaneous and subcutaneous lesions in sporotrichosis, one being that the disease takes on an early septicemic character with localization in the skin and subcutaneous tissue in widely separated parts of the body, the other being that the disease is localized in the tissues surrounding the initial lesion by spreading along the lymphatic channels. Both of these forms are frequently encountered; however, the latter is more commonly observed. Many supporting observations for the septicemic nature of some of the severe types are very convincing. First, the causative organism can be cultivated from the blood stream in these cases. Secondly, the antibodies in the form of agglutinins are present in all cases regardless of the presence or absence of microorganisms in the blood stream. Thirdly, another form of immune body in the patient's serum is demonstrated by a positive complement fixation reaction.

With the present awareness of the nature of this infection, why are visceral lesions so rarely observed? There is no adequate explanation other than the rapidly developed immune body reaction of the individual and the low virulence of the microorganism. Since cutaneous sporotrichosis is now readily diagnosed and easily cured, it is highly possible that the disease does not have sufficient time to develop visceral lesions before the condition is well under control by treatment.

Dr. William M. Davis, St. Petersburg:

I want to thank Dr. French for his most comprehensive discussion of this subject.

I do not think there was any doubt about the diagnosis in the case I reported about eighteen months ago. I had occasion to take the patient before the Pinellas County Medical Society at one of its meetings. The man was a horticulturist working in a nursery, not a citrus nursery but a general nursery. He pricked the back of the middle finger of one hand with a thorn, and I saw him a few days afterward. The sore did not heal under ordinary surgical treatment. In the course of a week or ten days there were nodules in the epitrochlear region, and the infection had now spread a considerable distance up the arm. There was very little pain, and only a slight inflammatory process was present. The infection had jumped from hand to elbow and then worked back down along the arm. I have some pictures I wish I could show you, but they do not differ from Dr. French's pictures and are not as good as his.

Having once seen a case of this type of lymphangitis, I feel that nobody would ever mistake a second case that did not heal up readily with ordinary surgical treatment.

I took cultures, but my associates and I were unable to grow them in the laboratory. I feel now that we should have given potassium iodide more promptly. As it was, however, the condition cleared up entirely within six weeks or two months.

Dr. J. Sam Turberville, Century:

I have seen several cases of sporotrichosis at intervals of from two to three years. The first one occurred twenty-five years ago or longer. I recall three of them.

As Dr. Davis has said, the clinical features are characteristic. I do not think that it is always necessary to have a culture of the blood serum before making a diagnosis. The lesions that I have encountered were all so typical, as described in the literature, that the diagnosis occurred to me immediately.

In my first case, the man had pricked his finger with a pocket knife. He had the typical chain of nodules. Some were on the index finger, and they spread in a perfect chain all the way up the arm. These nodules were painless, and there was very little discoloration. Dr. French's case showed a little more color in the lesions. The initial lesions resembled a good deal the early stages of syphilis, but were elevated whereas the lesions of syphilis remain flat and are of a dark red color.

In my second case the findings were also typical of sporotrichosis, and the diagnosis proved to be correct.

My diagnosis was not confirmed in the third case. The man wrote to me later, however, and said that the condition had promptly cleared up under treatment with potassium iodide.

The other cases I cannot recall. I am sorry that I did not make a report on them as this condition is so unusual.

Dr. French (concluding):

The rarity of reported cases of infection by fungi of the genus Sporotrichum is in strong contrast to the widespread occurrence of the organism in nature. Floridians are outdoor people, and exposure to the organism with consequent opportunity for infection is multiplied.

The clinical type of sporotrichosis here reported is apt to suggest the cause. Other types may exist for years without identification and be confused especially with syphilis or tuberculosis. Many patients with this disease have been falsely stigmatized as syphilitic or tubercular and have been treated for long periods of time unsuccessfully. Even these long-continued cases could often be cured with sufficient amounts of iodide.

1941 DISTRICT MEETINGS

"A" Tallahassee, October 2
"B" Gainesville, October 3
"C" St. Augustine, October 4
"F" Hollywood, October 30
"D" Bartow, October 31
"E" Orlando, November 1

TREATMENT OF INJURIES OF THE HAND

M. Paul Travers, M. D.
Miami Beach

Statistics pertaining to industry indicate that accidents to the hand and fingers comprise almost one half of the total number of injuries sustained. They are five times more numerous than accidents occurring to the long bones. Their cost in compensation is twice that for injuries to the long bones and approximately one third of the amount paid for all industrial injuries. A person suffering for four months from an infected compound fracture of a finger is as totally disabled as if his femur were fractured. Prevention of permanent disability from injury is especially important today, when, besides accidents in civilian life, there are those incident to military activities that must be prepared for.

Correct early treatment is of the greatest importance in the prevention of later disability. The variety of drugs, splints and methods advocated for the treatment of the injuries to the extremities often obscures the few fundamental principles that are actually important. The object of this paper is not to recapitulate the routine or complete details of treatment of any given injury, but merely to call to special attention some fundamentals frequently overlooked, with needless disability often resulting. This type of presentation is of necessity fragmentary and requires important omissions.

In approximately half of all accidents open wounds occur. In order to secure healing by first intention three essentials must be followed. The wound must be treated within six hours; the treatment must be sterilization, excision and suture; following initial treatment the injured part must be given absolute rest. If seen twelve or more hours after the injury, an open wound should not be sterilized, débrided nor sutured, as the bacteria are beyond reach and the object is not to excise but to raise the resistance of the tissue and provide drainage if necessary. Between the sixth and twelfth hour after injury the treatment depends on the condition of the wound, whether clean and sharply incised or contused, lacterated or contaminated.

It is desirable to convert all open wounds and fractures into closed ones if seen early. A wound in the first six hours is superficially contaminated, but there has been no opportunity for bacterial multiplication or invasion. Such a wound should not be shaved, washed nor irrigated. Tincture of iodine applied before bébridement will sterilize the superficial areas without washing bacteria into the depths of the wound. The view that the use of iodine or other strong antiseptic renders the tissue less viable and more likely to infection is correct when applied to treatment of a wound that is to be left open; but in a wound to be sutured, it is imperative to destroy the bacteria lining it superficially. The débridement will remove the thin layer of tissue devitalized by the iodine.

In the treatment within the first six hours of compound fractures in the hand, novocain injected an inch from the wound and infiltrating its circumference, or given by brachial block, is of special value in cases in which multiple injuries and severe shock occur. There is an immediate lessening of shock due to relief of pain owing to the local anesthesia. Adrenalin should not be used locally in wounds of the fingers as it favors both dry gangrene and gangrene from the anaerobes. A general anesthetic given over a prolonged period to a patient in severe shock may terminate fatally.

As to the débridement, it is important, when possible, that not more than 1 or 2 mm. of the edge of the skin is cut away. If over 5 mm. is removed, the wound may close only with tension. All gross contamination should be removed. The sheaths alone of vessels, nerves and tendons should be débrided. The surface of bone may be scraped; bony fragments should not be removed unless completely separated. The removal of large segments of bone will result in nonunion. Infection with union is better than primary healing with nonunion; the infection will subside while the bone heals, if properly immobilized in plaster. A tourniquet should not be used during débridement since color and ability to bleed will determine which muscles require excision. Tags of fascia and crushed muscle must be removed to avoid infections and gas gangrene.

The primary suture of severed tendons should be attempted only in the cleanly incised

wound seen within six hours. In such cases the rest of the wound is débrided before the tendon is brought down into it. For a tendon suture, an additional incision is usually necessary, and good assistance is needed. It is more difficult than a routine appendectomy and is not to be undertaken lightly. In the finger, if the flexor sublimis is cut, it should never be sutured. If both the sublimis and profundis are cut, the profundis only should be sutured and the sublimis excised. Suturing them both causes adhesions and only the middle joint will move. When flexor tendons are severed between the middle palm and middle finger joint, suture and postoperative swelling cause a cicatrix in the tight tendon sheath in that area. Therefore, the whole fascial tunnel should be split laterally. Silk No. 2 or wire No. 34 should be used; the cast and not the suture should be depended upon to prevent disruption. The cast should be removed in three weeks and in four weeks full motion should be attained. If possible, denuded tendons and bone should be covered by skin flaps; if not, Theirsch grafts may be used immediately, under the plaster cast.

In lacerations with extensive contusion or devitalized areas present, tendon suture should be delayed. In such wounds, only the skin is closed except that, if divided, important nerves may be sutured. Catgut is a foreign body and only large vessels should be tied; hemostatic pressure may be used to stop small bleeders. Torn ligaments should not be sutured; they heal spontaneously. Deep sutures and drains are unnecessary invitations to infection. If a large area of tissue has been crushed and appears devitalized, the wound should not be sutured; a solid cast should be applied over a vaseline gauze dressing. For infected wounds that discharge profusely, a rubber tube drain may be inserted through the cast to, but not into, the wound. Drainage will usually cease within a few weeks if the wound has been properly immobilized.

Prophylactic chemotherapy, still in the experimental stage, should not divert attention from the need of adequate surgery and immobilization. Powdered sulfanilamide and sulfathiazole, up to 5 Gm. each, may be used locally after excision but these chemicals are of no value locally in the presence of infection as pus inhibits their bacteriostatic action. They may be used orally, according to the surgeon's judgment as to whether infection is possible or present.

After the open fracture has been converted into a closed one, the fracture is reduced and immobilized. Setting the fracture by instrumental manipulation in the open wound is dangerous because of the further damage done to the injured exposed tissues, and bone infection is more likely. Corrections should be made only in the first few hours after the wound is sutured. Thereafter, movement favors infection. If the position of the bones is not satisfactory, it will be necessary to wait until the wound is healed and the skin is normal before undertaking further manipulation.

The sutured wound is treated without dressings when bleeding has ceased. Plaster of paris is used for immobilization, and a window is made for the wound, which is dressed for twelve hours only. A piece of Cramer's wire is looped over the hand and attached to the cast with a few turns of plaster to protect the wound and to serve as a point of traction when required. Wounds frequently weep; dressings, if continued, become moist and the skin macerated. These conditions favor infection. With an exposed wound, the escaping serum will form a crust more satisfactory for primary healing. During the initial period when infection is possible, the extremity should be raised to secure the optimum circulation and prevent edema. An abduction splint maintains proper rest and elevation. A heat lamp is helpful in maintaining a favorable temperature.

Stitches that are under some tension on account of loss of skin should not be removed for two or three weeks, to avoid separation of the wound and secondary infection.

When the danger of infection is over, the sutured wound should be covered by closing the window of the cast with felt and plaster or by applying a new solid cast before the extremity assumes a dependent posture; otherwise "window edema" will lower the vitality of the area and favor infection. The cast is retained for several weeks, the period of immobilization depending on the severity of the injury. If the cast becomes soaked with blood or develops a strong odor from discharge, this fact is no contraindication for its continuance. A solid cast

is not used initially when a hand is so severely injured that its viability is threatened; neither is it used in the presence of spreading cellulitis or possible gas gangrene. In these cases the limb must first be kept under observation in a plaster shell until the infection has been localized. A cast is removed only when there is a late elevation in temperature (above 100 F), which indicates a pocket of infection that must be drained, after which the cast is reapplied.

If an open fracture or wound is seen after twelve hours, when it is no longer good surgery to sterilize, débride or suture it, gross dirt and devitalized tissues may be excised, pockets opened and good drainage established. Uninterrupted rest is the principle then relied upon. An unpadded plaster cast should be used for immobilization, the open wound being covered with only a vaseline or a plain gauze dressing. A flat board under the hand encourages stiffness of the fingers. No antiseptics nor irregations are indicated. A hand bath at a critical stage will spread infection because it disturbs the immobility of the part; furthermore, the dependent extremity without a cast encourages edema, which lowers resistance of the tissues.

Unwindowed and unpadded plaster casts should be left on the injured hand for a month after they are first applied, if possible. During this time the underlying fractures will heal, wounds left open will granulate in, infections in soft tissue and bone will subside and the skin will begin healing over large areas without grafting, although that procedure may be required. Infected fractures will eventually extrude any sequestrum. Infected bone should no more be curetted than should a furuncle. If a sinus persists, it should merely be probed for the foreign body or sequestrum that is there. Infection will otherwise not persist if a well fitting cast is applied for a sufficient period.

Often the treatment is exactly contrary to the requirements. The patient is given complete bed rest, but the injured area is moved constantly, soaked several times daily and irrigated with many chemicals, and the patient is taken repeatedly to the departments of physical and roentgen therapy as well as subjected to frequent, painful and disturbing dressings.

When pus is present in the hand, it must be evacuated. It is routine knowledge to competent surgeons that the spaces in the palm, chiefly the thenar and mid-palmar spaces, are deep to the flexor tendons. Were the thenar space superficial to the tendons, proper treatment of an abscess in this space would consist of making an incision at the apex of the swelling to evacuate the abscess. However, since the space is beneath the tendons, to incise at the apex of a bulge, as is usual elsewhere, would end disastrously since the tendon area would have to be cut through to get to the abscess. Thus a severely disabling process would be initiated. A lateral approach through the webb between the thumb and the forefinger will drain the space below the tendons and not endanger them. Other spaces in the hand require a special approach not herein described, but it is important to remember that tendon areas must not be cut through to drain abscessed spaces.

Postoperatively, if in suppurative cases the patient continues to maintain an elevated temperature, pockets of pus should be looked for. Ethyl chloride is not a satisfactory anesthetic for this purpose since the exploration should be slow and careful. The dorsal aspect of the hand is frequently swollen. Pus is rarely present in the dorsum; swelling in this area is usually edema, and the pus is probably on the palmar aspect.

If, after an adequate incision has been made for pus anywhere in the hand, a plaster shell were always applied and the extremity put on an abduction splint for complete immobilization and elevation, many severe infections would be brought under control rapidly. It is not fully realized that immobilization and elevation are as important in the treatment of wounds of the soft tissue as they are in injury of bones or infections. They will not, of course, relieve conditions due to undrained pus, such as an overlooked tenosynovitis.

When the temperature and inflammation incident to an acute infection of the hand have subsided, motion should begin in all fingers not injured and also in the elbow and shoulder. Stiffness in the adjacent fingers, the elbow or the shoulder after injuries to the hand is usually due to delayed movement. After simple fractures, motion in all other parts should begin at once.

It might not be amiss at this time to discuss the special aspects of some war injuries. Hard bullets shot through the hand at a high velocity with small portals of entry and exit require no débridement nor suture. They need only the excision of edges, if ragged, since the wound is free of debris, and immobilization in a plaster cast for two months. If there is no wound of exit, sufficient roentgenograms must be made to locate the bullet, which is then simply removed. If the injury is produced by a soft bullet, bomb or shell fragment, the wound is usually lacerated and foreign bodies are in its base. A radical débridement is then required, followed by the application of a closed plaster cast. Tendons should never be sutured in injuries caused by war. Tendons of fingers other than the thumb, extensively damaged by shrapnel or rifle, should be amputated since the residual function does not compensate for the risk of infection and time involved in more complicated treatment. For injuries to the thumb and metacarpals, the treatment should be conservative even in severe wounds, and immobilization secured by a closed plaster cast. The fingers should never be put up in extension but in the position of best function. Fractures accompanied by burns, which are common in aviation, should be débrided and set, and the wound covered with vaseline gauze and a solid cast applied to the area. Deep burns will heal under prolonged immobilization.

Closed fractures in the hand are not frequently subjected to open operation; however, open methods for recent closed fractures are used in a few clinics. Generally, this practice is to be condemned, except in some very special instances. After surviving the initial shock of an injury, a healthy person practically never dies from the treatment of a fracture. Also, osteomyelitis and nonunion rarely occur. In one report of 35,000 cases, the period of recovery from fracture of the same bone, when treated by open operation, was twice as long and twice as expensive; also, bone infection, nonunion and the mortality rate were immeasurably greater with the open method. By proper traction almost every displacement can be corrected. If such reduction is not always perfect, the patient is usually better off with a slight anatomic alteration than with some of the complications just mentioned. Pins and wires used for traction, placed at some distance from the injured area, are relatively safe, although not entirely without danger; they should be used only if indispensable. The great danger involved in open operation is that it is done on the injured area, which does not have a normal resistance.

Some displaced fractures in the hand require traction. The treatment in such cases is often more difficult mechanically than that of fractures involving large bones, due to the smallness of the parts, their more complicated movement and the greater tendency of their joints to stiffness. To achieve steady traction, a well fitting broad base is necessary. Metal splints with adhesive tape are not effective; they neither fit well nor hold long.

Immobilization of the hand by a plaster cast requires a plaster 6 inches wide applied dorsally from just below the elbow to the knuckles to prevent edema of the loose tissues of the dorsum. Adhesive tape may be used to bind the palm to the cast but should not interfere with the complete flexion of all uninvolved metacarpophalangeal joints. Only those fingers involved should be splinted in flexion by individual wire splints.

If the use of the normal joints is unnecessarily limited, especially in patients over forty with tendencies toward arteriosclerosis or general osteoarthritis, residual stiffness and disability are encouraged. The use of a banjo splint or any palmar device for fractured fingers is not desirable since it does not allow flexion of uninjured fingers. The use of tongue depressors for fractured fingers is not satisfactory as a position of good function is not attained.

The Böhler wire finger splint conforms to proper principles. This splint can be shaped to the palm and the flexed phalanges, then covered with plaster and finally incorporated into the cast on the palmar side by a few turns of plaster. The injured finger is put on the splint usually with its three joints flexed respectively at forty-five, ninety and forty-five degrees; the splint extends beyond the finger so that traction can be attached to it. After reduction, traction is applied when necessary by a stainless steel wire placed through the ball of the finger (not through the phalanx or nail), with a small wooden spreader, and tied to the cast, prox-

imally. Fluoroscopy or roentgen study is required at frequent intervals in the early treatment of this as well as any other part in traction. It is well to add, however, that repeated or continuous interference is a cause of nonunion, although this condition is rare in the hand.

Traction on a finger should not be used in the case of a slight displacement in the shafts of the phalanx or metacarpus, as some stiffness in the fingers will often result and thus real disability is courted where none was threatened.

A very disabling injury, if mistreated, is Bennett's fracture—dislocation of the thumb. This consists of a fracture of the base of the metacarpus on the inner side; the metacarpus itself is subluxated from the trapezium due to rupture of the triangular ligament. This injury is easily reduced but will not stay reduced in a molded cast unless there is traction on the thumb for four weeks. Neglect of this procedure weakens the entire hand. Traction is also required in phalangeal fractures when one third or more of an interphalangeal joint surface is over-riding. Some small chip fractures require excision since the function of the finger cannot be risked for the sake of union of some difficult fragment. In some sprained fingers there is an excessive reactive exudation and swelling of an interphalangeal joint. As with other injured joints, a preliminary period of immobilization is indicated, usually from one to two weeks in a position of moderate flexion. After this period, however, mistreatment may greatly prolong the difficulty. Overimmobilization for many weeks may result in some permanent stiffness; also overenthusiastic passive stretching and massage delay recovery. Consistent, regular, active exercises, done for five minutes every hour, will afford the quickest recovery possible, although it may take a few months to reduce the swelling and regain motion.

There are two common and treacherous injuries of the wrist that deserve comment inasmuch as their neglect can be the cause of severe disability to the hand. They are fracture of the carpal scaphoid and dislocation of the carpal semilunare. Fracture of the scaphoid is often thought to be a sprained wrist. When there is persistent pain in the wrist and special tenderness in the region of the anatomical snuffbox, roentgenograms are essential; special views are necessary to show this fracture. If the first roentgenograms do not disclose the fracture and the symptoms continue, others should be made in three weeks. Some fractures may not be apparent at first.

If absolute immobility is not secured, or if the cast is removed before six weeks have elapsed, nonunion with serious consequences may result. The cast should be unpadded and the metacarpophalangeal joints left free. Plaster instead of adhesive tape should bind the hand to the dorsal splint. If the wrist can move there will be nonunion. Even old fractures will yield to prolonged immobilization. Open operation is required only when there is true nonunion, that is, sclerosis of the fractured surfaces. It is then necessary to drill through the sclerosed surface and open new vascular channels that will permit healing with immobilization. The only indication for the removal of the scaphoid is an avascular necrosis of the bone before arthritis has occurred; then, only the lower half should be removed. If arthritis of the radioscaphoid area is present, only arthrodesis of the wrist joint will eliminate painful motion.

The dislocated semilunar bone is also frequently overlooked. This dislocation can be replaced by closed methods in the first three weeks. What is required chiefly is a straight pull separating the carpus from the forearm so that sufficient space is provided in the wrist for the replacement of the carpale. Leverage is not effective nor is intermittent traction. Strong continuous traction for ten minutes is necessary. After three weeks, open operation will be required. Due to improper reduction and immobilization, injuries to the scaphoid and semilunar bones have resulted in so many failures that open operations and removal of these bones, even for recent injuries, have been advocated at one time or another. The removal of these bones always leaves a permanently weak hand and is certainly never to be considered in their early treatment.

There is a pernicious practice of removing the cast from a fracture before it is healed, for treatments of one sort or another. To attempt to remove the cast earlier in order to institute passive motion, massage or physiotherapy,

causes pain and swelling, and also delays union and the full exercise of adjacent joints.

All fractures, no matter with what complication, must have complete and continuous immobilization until united; all surrounding joints should be exercised from the first. It is not immobilization alone, but combined with disuse, that produces stiffness; therefore, if surrounding joints are constantly used, the function of an affected joint is also improved. If, in the case of a simple malleolar fracture, the foot is strapped and the patient lies in bed, functional inactivity will result, perhaps accompanied by some foot drop, swelling, general atrophy of the area and limitation of motion of all adjacent joints and muscles, lasting for a period of several months.

When an ambulatory cast is used for three weeks and adjacent joints are properly exercised there is usually a prompt recovery of function and motion. The cast allows motion of adjacent uninjured joints and thus the tendons about the joint in the cast function more than they could during the limited "passive exercises" given when an ununited bone is removed from its protective cast. A cast over an injured joint, therefore, actually can prevent stiffness if execises of the surrounding joints are done for five minutes each hour. Exercise (active, not passive), of all adjacent joints should be persisted in, despite early discomfort; edema is an indication that exercises are needed, not the reverse, as "edema is glue."

Three thousand units of tetanus antitoxin should be given in all open wounds. For any secondary procedure, 3,000 additional units are necessary. As to gas gangrene, if all dead tissue is removed, these bacilli do not become pathogenic even though present. If devitalized tissue remains to act as anaerobic media, a dose of serum will not help much, prophylactically. The serum, however, may be used because of the seriousness of the complication.

The principles of treatment for wounds of the hand apply equally to injuries and infections of all the extremities, whether bone or soft tissue is involved.

311 Lincoln Road.

CARDIAC ARRHYTHMIAS

J. W. Annis, M. D.
Lakeland

Cardiac arrhythmias have long been of interest to physiologists and clinicians. Osler related that an Alexandrian anatomist, Herophilus, counted the pulse with a water clock and made an elaborate analysis of its rate and rhythm as early as 300 or 400 B. C.

Taking the radial pulse is one of the oldest methods of clinical investigation. Certain disorders of cardiac rhythm are not, however, manifest in the radial pulse and need one or another of the instruments of precision for their demonstration. It is to these instruments, the sphygmograph, the polygraph and the electrocardiograph, that we owe our present knowledge of cardiac arrhythmias, the exact nature of which was not understood until the present century. They are in themselves merely manifestations of underlying disorders that should in each case be correlated with the other data and the entire clinical picture before any true estimation of their significance may be made.

This discussion includes a consideration of those anomalies producing a disturbance of the normal regularity of the heart beat and excludes disorders of the conducting mechanism. Eight forms of arrhythmia are presented: (1) sinus arrhythmia; (2) sinoauricular block; (3) nodal rhythm; (4) ventricular escape; (5) extrasystole of whatever origin; (6) auricular flutter; (7) auricular fibrillation; and (8) ventricular fibrillation.

Normally the heart muscle differs somewhat from ordinary striate muscle, chiefly in its less predominant striations. Because of the close unity of its fibers it more nearly resembles syncytium. For practical purposes there is functional continuity throughout this muscle. The special tissues concerned with the initiation and propagation of the heart beat are the sinoauricular node; the auriculoventricular node, the bundle of His with its right and left divisions and their arborization, and the terminal fibers of Purkinje.

The sinoauricular node, situated at the junction of the superior vena cava and the auricular appendix of the right atrium, extends about 2

Read before the DeSoto-Hardee-Highlands-Charlotte-Glades County Medical Society, Wauchula, February 14, 1939.

cm. down the sulcus terminalis. It has a rich arterial supply and contains nerve cells and fibers forming relays with the vagus and sympathetic nerves. Its peculiar feature is the long thin muscle fibers longitudinally striated in a plexiform arrangement that is believed to initiate the heart beat under normal circumstances. For this reason it is called the pacemaker of the heart. The nerve supply is from the right vagus.

The auriculoventricular node lies at the posterior border of the interauricular system on the right side near the mouth of the coronary sinus and is identical in structure with the sinoauricular node. It is supplied by the left vagus.

The bundle of His runs horizontally forward from this node to the anterior part of the membranous septum where it forks. The left branch penetrates the septum just below the aortic valve and enters the subendocardial space of the left ventricle. The band on the right side goes down into the moderator band and papillary muscles. Both branches are continuous with arborization of fibers penetrating the ventricular wall.

The cardiac impulse normally arising in the sinoauricular node at a rate of from 100 to 120 is inhibited by vagal tone to produce a rate of from about 70 to 80. The impulse spreads uniformly through the auricles as a ripple over water, but not to the ventricular musculature. The auriculoventricular node is affected by the impulse and transmits it through the bundle of His and its ramifications to the musculature of each ventricle separately. The bundle is the sole connecting strand between the auricles and ventricles. This normal sequence of events produces the normal electrocardiogram. While the impulse normally starts in the sinoauricular node, all parts of the mechanism including the cardiac muscle itself may originate it, in the event either of the depression of the more sensitive normal pacemaker or the excitation of the ectopic focus.

SINUS ARRHYTHMIA consists in a regular waxing and waning of the pulse rate due to a regular cyclic change in vagal tone. It is usually associated with respiration and in this instance designated respiratory arrhythmia. Presumably it is due to a reflex inhibition of the cardiac vagal tone from impulses derived from the pulmonary branch of the vagus during inspiration and to reflex stimulation during expiration. It offers little difficulty in diagnosis, but because it occurs usually in children and young adults, it has been erroneously associated with meningitis. Its importance lies in differentiating it from a serious disorder, thus avoiding unnecessary treatment or an alarming prognosis. The type unassociated with respiration occurs in cycles of from 10 to 15 seconds. It may be due to heightened vagal tone and occurs occasionally after the administration of digitalis. Usually deep breathing produces a typical respiratory arrhythmia. Anything raising the heart rate, such as exercise, fever, or the action of atropine, causes the arrhythmia to disappear. It rarely occurs when the pulse rate is over 100. The electrocardiogram is normal except that the tracing indicates rhythmic waxing and waning of the rate. Usually this form of arrhythmia occurs only in persons with healthy hearts and requires no treatment.

Sinus tachycardia is characterized by a regular pulse rate above 85 and has no significance other than that of drawing the clinician's attention to the underlying cause, which may be fever, hyperthyroidism, exercise, reaction to drugs or emotion. The onset and termination are gradual, and symptoms as such are lacking. Except when caused by fever or hyperthyroidism the excessive rapidity subsides during sleep. The arrhythmia persists for varying lengths of time dependent on the cause, and the electrocardiogram is normal except for evidence of the increase in rate.

Sinus bradycardia, with a regular pulse rate varying between 50 and 60 approximately, is of sinus origin, due either to vagal tone or to direct toxic effect on the sinoauricular node. It is associated with fasting, asphyxia, certain acute fevers such as influenza and typhoid reaction to drugs, notably digitalis, and exhaustion. It may be differentiated from other arrhythmias by means of atropine. In persons with excessive vagal tone the rate slows and the blood pressure drops, causing cerebral anemia and the syncope of the ordinary fainting spell. Emotion may produce this abnormal slowness of the heart beat; pressure on the carotid sinus may also cause it temporarily. It requires no treatment in itself although the underlying cause may. The electrocardiogram is essentially normal though the P wave may be flut-

tered, notched or inverted, owing to the origin of the impulse in the lower part of the sinoauricular node.

Sinus arrest or sinoauricular block is rare and usually transitory. It is due nearly always to vagal effects, disappears when atropine is administered and usually occurs in adults, having little if any clinical significance. It consists of a complete cardiac asystole or dropped beat and occasionally 1:2 and 1:3 beats. The interval is slightly less than that of two normal beats, and the electrocardiogram aside from demonstrating the asystole is normal. The lack of impulse initiation in the sinus node, a block in the node, and an inability of the auricle to contract are etiologic factors. The action of digitalis and quinidine causes this arrhythmia; the role of aconite, magnesium sulphate and nicotine remains problematic. Some hearts, especially those of athletes, have a rate of from 30 to 40 that is suddenly almost doubled by exercise as a result of this phenomenon, a partial block being present to produce pronounced bradycardia.

Nodal rhythm is a disorder in which the pacemaker is in the auriculoventricular node, which sends out regular impulses to both auricles and ventricles. The electrocardiogram shows a normal QRS complex and also an inverted P wave, since it arises at an abnormal focus. If the origin is high in the node, the P wave precedes the QRS complex by a very short PR interval since the auricles receive their stimulation slightly before the ventricles. If the origin is near the center of the node, both auricles and ventricles contract simultaneously, and the P wave is lost in the QRS complex. If the base of the node gives rise to the impulse, the normal QRS complex is followed by an inverted P wave. The pulse rate is usually slow, ranging from 40 to 50, but may be considerably more rapid. This type of arrhythmia is observed in persons with apparently normal hearts and may result from purely neurogenic influences affecting the vagus. On the other hand, it occurs in heart disease, but is not characteristic of any particular cardiopathy. It is a constant finding when death is taking place and uniformly ushers in prelethal bradycardia. Such a condition results from depression of the normal pacemaker or excitation of the auriculoventricular node. In the intermittent stage migratory rhythm may occur as the pacemaker varies from one level to another between the sinoauricular and auriculoventricular nodes. Since there is no definite clinical significance in nodal rhythm, treatment is indicated by the underlying pathologic conditions that may be present.

Ventricular escape is closely allied to nodal rhythm. In this condition the sinoauricular rate is so retarded that the auriculoventricular node, refusing to wait longer, sends an anticipatory impulse to the ventricles. The ventricles in this instance escape from the control of the sinoauricular node because of the development of autonomy in the auriculoventricular node. Two forms are observed; one is due to depression of the sinoauricular node and the other to excitation of the auriculoventricular node. Their recognition depends on the rate of the sinoauricular pacemaker and the rate of the ventricular pacemaker escaping. The ventricular complex remains unaltered. The condition is distinguished from nodal rhythm only by the electrocardiogram. In ventricular escape the heart is under the control of two pacemakers, both the sinoauricular and the auriculoventricular. In nodal rhythm it is under the latter only.

Extrasystole or premature beat, the arrhythmia occurring most frequently, was first accurately described by MacKenzie[1] in 1902. It may be of auricular, nodal or ventricular origin and is in consequence correspondingly difficult of interpretation in electrocardiograms.

Premature beats occur at all ages, but especially in later adult life. They are twice as common in men as in women, and it is probable that the majority of people beyond middle life have them at one time or another. They are often associated with cardiac lesions of various sorts and myocardial damage, but occur most often when the heart is otherwise normal. They also frequently accompany infection. Fatigue and slowing of the heart rate predispose to extrasystoles, and, conversely, raising the rate with exercise and by administering atropine corrects this abnormality. The condition may be produced also by stimulation or reflex stimulation of the vagus owing to flatulence (French), excessive smoking and like causes.

The auricular extrasystoles arise from an ectopic focus in the auricle at some time previous to the normal impulse and therefore produce an abnormal P wave, which is inverted, and a normal ventricular complex since the impulse follows the only possible route between the auricle and ventricle. The nodal group shows all the characteristics of nodal rhythm with a normal QRS complex and a usually inverted P wave which may shortly precede, coincide with or follow the ventricular complex. Ventricular premature contractions arise from an ectopic focus in the ventricle itself and show therefore a bizarre ventricular complex in the electrocardiogram. It is heightened, widened and premature, and it usually is diphasic, slurring and notched, the degree of abnormality depending on the distance of the point of origin from the bundle. Since no auricular contraction precedes it there, it has no P wave of its own, but the normal auricular rhythm remains undisturbed, and a dominant rhythm is maintained. If it is but slightly premature, it may blend with the normal beat, and, if earlier, it will bury the normal P wave. The normal auricular impulse reaches the ventricle during its refractory period and consequently causes no reaction. The T wave is large, peaked, and always opposite the ventricular complex.

The pauses following the auricular and nodal extrasystoles vary in length. In the auricular and usually in the nodal type they are longer than an ordinary pause, but not equal to a double cycle; in the latter form occasionally, however, if the impulse is very low in the node, a compensatory pause will ensue. In ventricular extrasystoles the pause is compensatory; that is, the time from the preceding to the succeeding contraction is equal to exactly two beats because the auricular rhythm is undisturbed. There is, then, a dominant rhythm, and, if a chronograph were set to coincide with the normal rate and a ventricular premature contraction then interposed, the succeeding normal beats would still coincide with the chronograph. This compensatory pause is not characteristic of the other types, and the length of the pause is the chief method of clinical differentiation. Actually this differentiation may be difficult or impossible although a sharp venous impulse and loud first heart sound aid in the event that the auricle and ventricle contract together. The differentiation is, however, of no clinical significance.

The so-called interpolated extrasystoles are of ventricular origin, occurring early in diastole in a slowly beating heart between two normal beats and ending before the normal auricular impulse arrives. Hence it does not replace another beat nor disturb the dominant rhythm and is in the true sense an extrasystole, not a premature contraction. In the electrocardiogram its appearance is identical with that of a premature contraction of ventricular origin.

The clinical signs of extrasystole include first cardiac irregularity owing to the premature beat. If the beat has sufficient force to raise the aortic valve, there will be the two normal heart tones and the radial impulse. If not, only the first tone will be present, and the so-called pulse deficit or discrepancy between the apical and radial impulses will obtain. The rate may be very irregular or only slightly so, depending on the number of extrasystoles present. Their frequency varies from an occasional to a regular occurrence every other beat, thus producing a bigeminal pulse. Differentiation between auricular fibrillation and extrasystole may usually be easily made by raising the rate with mild exercise or by administering amyl nitrite, thus restoring a regular rhythm in the case of extrasystole and accentuating the irregularity in auricular fibrillation. On resting, the irregularity of extrasystolic origin tends to recur.

The symptoms of premature contractions are often lacking. On the other hand they commonly cause so-called palpitation, especially in nervous persons, and by calling attention to the heart may cause much anxiety. Usually the beat itself is unnoticed and the long pause that follows awakens a feeling of uneasiness or emptiness in the chest. The succeeding beat then seems a shock to the chest wall. If the beats are numerous and consciousness of them is full, faintness, pallor, sweating and coldness of the extremities may follow, occasionally causing great distress. Fatigue and emotion predispose to the more serious symptoms.

The prognosis of the condition itself is, of course, excellent, but it is frequently associated with severe underlying disease. It is perhaps best described by Lewis,[3] who compares the prognosis in these cases with that in cases of

epilepsy in which the patients have scars on their tongues. It is true that epileptics with scarred tongues have a more unfavorable prognosis than those without, but no one suggests that the scars as such influence the prognosis. So it is with extrasystoles. Their incidence is greater in persons with heart disease than in normal individuals; yet the presence or absence of this arrhythmia does not affect the prognosis in either case.

Specific treatment is usually unnecessary. Any underlying disease should be treated, and general healthful habits should be established. In severe cases, when symptoms are pronounced, quinidine, given in the amount of $\frac{2}{3}$ grain twice or three times daily over short periods, often produces excellent results. Digitalis is contraindicated as a direct remedial measure, but may be used for any concomitant disease. Bromides often provide satisfactory symptomatic relief.

Auricular flutter is characterized by an abnormal rhythm in which rapid, small, regular contractions replace the normal auricular systole. A partial block is present, the ventricle responding to every second, third or fourth beat. This arrhythmia occurs much less frequently than fibrillation, Blackford and Willius[5] estimating the proportion at 16 to 63. The impulse consists of a single continuous wave traveling in a circle usually between the superior and inferior vena cavae and, unlike the normal impulse, not radiating. The known limits of rate are 150 to 360, usually 260 to 320. Since the wave is always circulating, there is no true diastole of the auricle. Each circuit is an impulse which is relayed to the ventricle. There is, however, an almost invariable association with heart block, the ventricular rate varying from 32, which indicates complete heart block, to an occasional 320 or a 1 :1 ratio. Generally, however, it is a 2 :1 block, that is, a rate of 130 to 160.

The etiology is in no way specific. This arrhythmia occurs at all ages, although chiefly from 40 to 60, and, therefore, is often associated with arteriosclerotic conditions and degeneration of myocardial lesions. It is likewise associated with infection of the upper part of the respiratory tract, and Willius and Blackford[5] reported 4 cases in which it was associated with exophthalmic goiter. There is, also, a frequent association with mitral disease.

Clinical diagnosis is often difficult. In cases in which the block shifts from 1 :2, 1 :3 and 1 :4 to normal the pulse rate may be very irregular, but it is usually regular and rapid though slightly less than that of paroxysmal tachycardia. The two may have the same abrupt onset and termination, but flutter usually persists for weeks or months whereas paroxysmal tachycardia continues for minutes, hours or days, rarely over a week. The time element, however, is not conclusive, and possibly both are relatively little affected by exercise, posture and like considerations. Perhaps the greatest clinical help is pressure on the carotid sinus, which increases the block in flutter, usually halving the beat, and when the pressure is reduced, the ventricular rhythm goes back to exactly what it was before. This pressure, if it produces any effect in paroxysmal tachycardia, terminates the paroxysm completely.

Theoretically, in some patients at least, venous pulsation may be observed in the jugular vein corresponding to auricular contractions, and then of course diagnosis is established. If, as is common in paroxysmal tachycardia, the rate is 180 or over for a prolonged period, flutter may be excluded as auricular rates of over 360 are unknown and the simplest block would halve this rate. The electrocardiogram offers conclusive proof. Flutter occasionally alternates with fibrillations, producing a complex picture.

The symptoms vary considerably. In short paroxysms there may be sudden nervousness, palpitation, pallor, sweating, a sense of constriction or pain in the chest, weakness, fatigue, nausea and vomiting; if failure supervenes, overshadowing the classical signs in the presence of a large tender liver, rales, cardiac dilatation and bloody sputum may be observed. In contrast, there may be little or no effect from the disturbance, depending chiefly on the state of the cardiac muscle, which is often surprisingly good. Long persistent attacks may produce no symptoms in some patients save moderate exhaustion and fatigue on exertion, and, while their activities are somewhat curtailed, failure does not supervene even after years of continuous flutter.

Occasionally the ventricles respond to each auricular contraction, attaining a rate of around 300 and placing life in immediate jeopardy. Symptoms are profound, and consciousness usually is lost. Such attacks, if survived, are necessarily fleeting. The prognosis is based on the strength of the heart muscle and the burden it has to bear. Also of utmost importance is the response to treatment since most cases are amenable to specific therapy.

Two drugs are used in the control of flutter. Lewis[3] obtained much better results with the use of digitalis by increasing the block and slowing the ventricular rate to about 50, meanwhile producing fibrillations of the auricles. The drug is then withdrawn, and the rhythm often returns to normal. Willius[5] reported much better results if complete block could be obtained before withdrawing digitalis. Many American writers have found digitalis therapy relatively unsuccessful and prefer the use of quinidine to break the flutter by increasing the refractory period; some like to combine the two, digitalizing the patient first and producing fibrillation, then giving quinidine. The patient's reaction to this drug should always be tested first by giving a very small dose and it should be given in gradually increasing doses under careful supervision as untoward effects are frequent.

The electrocardiogram of flutter is characteristic. P waves are absent, being replaced by F waves which are constant in rate, form and amplitude, and may be either normal or inverted. They follow each other rapidly and are seen best in leads II and III. The QRS complex is normal. The T wave is usually not seen since it is buried in the F waves. The cycles are regular except in the instance of impure flutter when the cycles vary in length and a fibrillation is simulated.

AURICULAR FIBRILLATION has a characteristic pulse irregularity, distinguished in 1903 by Hering,[2] who called it pulsus irregularis perpetuus, but he did not comprehend the entire clinical picture as did MacKenzie[4] in 1906. It was not till 1909, however, that Lewis[3] demonstrated the physiologic mechanism producing the totally irregular pulse. Auricular fibrillation continues to be the most frequent significant form of arrhythmia, comprising well over 50 per cent of hospital cases of arrhythmia.

In this condition the auricles are in a constant state of diastole and no longer contract, but undergo only very rapid incoordinated fibrillary twitching. They lose their pumplike action and act only as a reservoir. Two chief theories are advanced to explain this behavior. First, in that of Lewis it is assumed that a circular movement is present as in flutter, but with a more sinuous and varying pathologic change; second, the German theory holds that it is due to multiple foci of impulse formation in the auricular wall. This, however, is purely an academic matter and does not affect the clinical aspect of the condition. It is known that the impulses which range between 450 and 1,000 do not originate in the sinoauricular node. Due to the inadequacy of these rapid stimuli only a few go through the auriculoventricular bundle. There results a rapid totally irregular ventricular rate with many ineffectual ventricular beats that fail to open the aortic valve and therefore bring about a pulse deficit. The condition may be permanent or transitory and in the latter condition is due to (1) an acute infectious disease such as rheumatic fever, typhoid, diphtheria or pneumonia, (2) surgical anesthesia, (3) the action of digitalis, (4) the paroxysms associated with hypertension in older persons, and (5) such causes as emotional stress, exophthalmic goiter and the immoderate use of tobacco or alcohol. Usually this type disappears as the cause is removed, or the action of the heart may be restored to normal with quinidine in those cases in which there is little or no cardiac damage.

Smith[1] made a comprehensive study of the etiologic factors in over 1,000 cases and reported that hypertensive heart disease and coronary disease combined formed the largest group, comprising 33.9 per cent of diseases with which this type of arrhythmia is associated. Hyperthyroidism, including toxic adenomatous and exophthalmic goiter, came next, being present in 32 per cent of the cases. Mitral stenosis with rheumatic endocarditis, forming the third group in size, was the largest single factor, as it occurred in 22 per cent of the cases in his series. Various other forms of heart disease were present in the remaining 12 per cent. Fibrillation was noted much more frequently in toxic adenomas than in exophthalmic goiter, owing largely, this author concluded, to the

longer duration of the hyperthyroidism as well as to the average increase in age of 10 years in the patients of the former group. Among consecutive cases of diseases known to cause fibrillation, mitral stenosis on a rheumatic basis was most frequently present.

Auricular fibrillation gives rise to two groups of phenomena, one dependent on the actual paralysis of the auricle, the other on the disordered ventricular rate. The first of these causes the variations in murmurs in mitral stenosis. The presystolic murmur does not always vanish, but, if long and harsh, persists in an altered time relationship. Developments depend, however, upon the nature of the murmur, the rate of the heart and other factors. The second group pertains to the ventricular disorder, which provides the clinical recognition. The total irregularity in a rate over 120 is nearly diagnostic, and when signs of heart failure are present, the diagnosis becomes practically certain. Typically then, there is no rhyme nor reason to the rate; the force of the beats varies greatly and bears no relation to the preceding diastole. The heart sounds bear out this diagnosis and vary from first and second sounds as the beat fails or succeeds in opening the aortic valve.

In distinguishing auricular fibrillation from other conditions such as extrasystole, sinus arrhythmia and partial block the mere acceleration of the rate by exercise or the administration of amyl nitrite usually suffices. In the other arrhythmias the increase causes regularity but in fibrillation the converse is true for the faster the rate the greater the irregularity. The total lack of any dominant rhythm and the absolute irregularity also aid. The persistence of irregularity in fibrillation is important as it continues usually until death whereas other irregularities are transitory.

The symptoms vary with the underlying cause. Those caused by the fibrillation itself may be absent or they may consist of breathlessness, exhaustion, palpitation, pallor, sweating and faintness. The auricular paralysis probably produces no appreciable effect on the circulation, but the ventricular disorder may cause varying degrees of cardiac embarrassment or failure.

The prognosis likewise varies with the etiologic factor, but fibrillation is significant as the chief or only sign of myocardial damage and itself imposes by its fast, irregular rate an added burden to an already damaged muscle. The most illuminating data in this respect are those presented by Willius[8] in an analysis of 500 cases, from which he concluded that "the mortality attending auricular fibrillation doubles and in some groups trebles that occurring in similar types of heart disease not complicated by this type of arrhythmia."

Treatment depends primarily upon the cause and the degree of heart disease present. In cases of short duration with little cardiac damage it is well to attempt restoration of rhythm by digitalis or quinidine, the latter being more efficacious. When a case is of long standing or serious cardiac disease is present, treatment should be directed toward slowing the ventricular rate to normal by means of digitalis and allowing the auricles to continue the fibrillation as it probably does not alter the prognosis and causes no especial symptoms. In this connection it is well to remember two things: (1) There is a definitely increased incidence of thrombosis when auricular fibrillation continues over any considerable period of time, but no increase in the occurrence of infarction or emboli; (2) There is a definite relationship between the establishment of normal rhythm and the appearance of infarction and emboli, and the lung and brain.

The electrocardiographic changes are three in number. No two cycles are the same length. The P wave is absent and replaced by small wavelets of varying size and shape. Frequent variations occur in the amplitude of the R wave.

Ventricular fibrillation has been until recently and perhaps still is considered a matter of academic interest, being regarded as a terminal event. Schwartz,[9] however, reported several cases in the past two years in which patients were observed after a long period of time who had been subject to attacks of syncope, transitory and recurrent in nature, and accompanied by an absence of heart sounds and pulse beats. The electrocardiogram in these patients before and during the syncope showed consistently a definite series of events, beginning with a normal sinus rhythm becoming rapid (150) and followed by occasional extrasystoles that occurred with increasing frequency till bigeminy was produced; then in unpredictable fashion

groups of two or more recurrent and superimposed aberrant ventricular oscillations followed, coinciding with the attack. Apparently there are two foci in control of the heart as in ventricular escape, the sinoauricular and auriculoventricular nodes, with the PR intervals varying in lengths. These ventricular oscillations or fibrillations, if they last from eight to ten seconds, cause pallor and fainting. After from twenty to forty seconds they cause unconsciousness, and if they continue for more than forty seconds, there ensues the typical Stokes-Adams syndrome, convulsions with cyanosis, apnea and incontinance. In the electrocardiogram there is a wide coarse movement of the base line with no regular QRS complexes.

Further carefully controlled studies of two patients with similar conditions in whom auriculoventricular dissociation and superimposed syncopal attacks of the type described were present indicate that quinine and quinidine, once advocated for the treatment of this condition, actually cause the seizures in susceptible patients and, therefore, are definitely contraindicated. There is, however, no explanation of their action.

REFERENCES

1. Mackenzie, J.: The Extrasystole, chap. 27, Diseases of the Heart, ed. 3, London, 1913.
2. White, P. D.: Heart Disease, ed. 2, New York, Macmillan, 1937.
3. Lewis, T.: Diseases of the Heart, New York, Macmillan, 1933.
4. Smith, H.: Study of Incidence of Auricular Fibrillation, Minnesota Med. 15: 403-406 (June) 1932.
5. Willius, F. A., Mayo Clinic: Personal communication.

P. O. Box 1021

A REVIEW OF SOME OF THE DRUGS COMMONLY USED IN UROLOGY

Alvin L. Mills, M. D.
St. Petersburg

It has been said that in urology medicine and surgery are inseparable. It is, however, not the purpose of this paper to deal with the surgical aspect of this subject.

Water, with its kinship to urine, was known and advocated by the ancients as one of the best remedies for disease of the kidneys, and niter, sulphate of copper and alum were in use a thousand years before Hippocrates. Apothecaries originated with the Arabs[1] and were known among their people as sandalini because of their common use of sandalwood oil. This drug was also a favorite among the early Hindus.

Prout in 1826 advised treatment with hyoscyamus and uva ursi for inflammation of the bladder and with opium, mineral acids and animal foods for phosphatic calculi of the urinary tract. In 1855 Glass advised the use of sulfurated linseed oil with oil of turpentine, known as Haarlem oil, and tincture of poke berries. Opium was used freely in those days, principally as opium suppositories.

The discovery in 1849 of the bacillus causing anthrax introduced a new era in medicine. During the next fifty years most of the organisms now known to produce disease were discovered. The problem of chemotherapy then began to take form. As yet no single known bactericide, when taken by mouth, will destroy all forms of bacteria in the urinary tract. A number of drugs, however, when properly used, are curative or decidedly beneficial.

Alkalinization is useful in relieving some of the symptoms of acute cystitis and pyelonephritis, especially when combined with the administration of hyoscyamus, paregoric and sandalwood oil. The practice of changing the reaction of the urine from acid to alkaline, or vice versa, has no value except for the sedation mentioned.

Copaiba, cubeb and uva ursi were in the past used extensively in inflammatory conditions of the urinary tract. They tend to produce gastrointestinal irritation. Sandalwood oil is still extensively employed. Ducoudray[2] in 1900 drew attention to the fact that undependable results of its use are due to the inconstancy of its composition, since it has not only been produced from widely different varieties of sandalwood but has also been subjected to extensive adulteration with cheaper and worthless oils. Winternitz[3] in 1901 demonstrated that the use of sandalwood oil promptly inhibits the formation of an exudate in an artificially produced pleurisy and promotes its rapid absorption, thus showing the beneficial effect on membranes in general.

Methylene blue is the best known of the group of diphenylamine dyes. It was first used as a urinary antiseptic by Einhorn in 1891. Hinman[4] pointed out in 1915 that methylene blue is not an individual chemical

Read before the Fourth Annual Meeting of the Southwest Medical District held in Dunedin, October 31, 1940.

substance for it often undergoes decomposition in its passage from the blood to the urine, appearing in the urine in the form of leukoderivatives or chromogens, which are mostly nonbacteriostatic; this decomposition may also occur as bacterial activity. Thus Escherichia coli decolorized a 1:1,000 solution, showing an imperfect antisepsis, he observed, while the staphylococcus was inhibited in a dilution of 1:150,000. This author, therefore, considered methylene blue of some value in staphylococcic infection of the kidney and bladder, but worthless in urethritis. Lowsley employed it in tuberculosis of the bladder.

Acriflavine, discovered in 1917, proved to be too irritating to be of much benefit. It was soon changed to a neutral flavine which allowed a higher concentration. Its action is more pronounced when the urine is alkaline. Hence, to promote efficiency an alkali should be prescribed with the drug. It is of no value in gonorrheal infection. Its principal usefulness is in infections of the kidney and bladder.

Pyridium, serenium, mallophene, neotropin, niazo and ambazin are proprietary urinary antiseptics similar in composition and action. They have a soothing effect on the inflamed mucous membranes and are said to penetrate the tissues. They have a bactericidal effect on the Esch. coli, staphylococci, streptococci and gonococci, which tends to retard the growth of some strains of these organisms. They are used in infections of the entire urinary tract, and, to be effective, should be given over a considerable period of time.

Hexylresorcinol, introduced to the profession in 1924 under the trade name of caprokol, is a product of synthetic chemistry. It is stable, nontoxic and nonirritating and is bactericidal to some strains of Staphylococcus albus and aureus and Bacillus pyocyaneus. Its most effective use is in soothing the inflamed mucous membrane in an alkaline cystitis, in which a more beneficial antiseptic could not be used.[4] Clinical evidence indicates that caprokol is a better coccocide than bacillicide.

Mercurochrome, administered intravenously or by mouth in enteric pills, has not proved itself of value as a urinary antiseptic. It often produces an acute nephritis and colitis. These findings were corroborated by autopsy on 50 patients at Bellevue Hospital, reported by Campbell.[4]

Neoarsphenamine is used specifically for resistant coccal infections. The usual dose is from 0.2 to 0.4 Gm. given intravenously at intervals of from three to five days.

Methenamine, sold under the trade names of urotropine, aminoform, formamin, formin, cystamin, cystogen, urisol and uritone, depends for its action on the liberation of formaldehyde and is one of the best known antiseptics. There are several factors worthy of notice pertaining to the use of this drug. The larger the dose the higher will be the percentage of concentration on excretion. Medium doses are of little use for antisepsis of the kidney since there is no time for the formaldehyde to form before the drug is excreted. Hinman[3] called attention to the fact that the dilution of the drug on its excretion is also a factor influencing the amount subsequently converted. Thus, a polyuria would largely offset the advantage of large doses. The alkalinity of urine due to the presence of bacteria which decompose urea, can, as a rule, not be changed by administering acid producing drugs. Levy and Strauss[5] demonstrated that to kill the colon bacillus a concentration of 1:5,000 is necessary and that a dose of 7 grains three times a day would not liberate formaldehyde in concentration strong enough to kill bacteria other than those of typhoid. After using hexylresorcinol and pyridium extensively since their inception in 1924 and 1926 respectively, Campbell[4] concluded in 1931 that methenamine in large doses is the most uniformly efficacious antiseptic available at the present time. The average toxic dose for the average adult is 180 grains. He employed methenamine in doses of from 50 to 100 grains daily. Hematuria frequently develops from vesical irritation, which promptly subsides when the drug is discontinued. Davis and Sharpe[6] in 1932 stated that methenamine is incomparably more efficient than either pyridium or hexylresorcinol in causing a normal person to secrete urine that is antiseptic against both the colon bacillus and the staphylococcus. Helmholz[7] in 1932 reported a series of experiments demonstrating that it is necessary to have a pH of 5.0 or less for maximum sterilization when methenamine is used. The old idea that a drug capable of acidifying should be given separately proved fallacious. This drug is commonly given with an acid.

It has long been known that most of the organisms found in the urinary tract thrive

in an alkaline medium and that a highly acidified urine tends to be bacteriostatic. These facts led Clark[8] and Helmholz[7] in 1932 to advocate the use of a ketogenic diet designed to produce a state of ketosis, the hydrogen ion concentration being kept at 5.3 or less since most organisms are not inhibited in their growth until a pH of 5.0 is reached. The ketogenic diet has been used most successfully with children, perhaps because the adult liver has greater capacity for storing glycogen. As a rule elderly patients are prone to gastrointestinal upsets, and a ketogenic diet for these patients is impractical. In 1935 Rosenheim[9] discovered that mandelic acid would do in a direct way what had been done with a ketogenic diet. It is the one drug in the physician's armamentarium that will destroy the Streptococcus faecalis. It has also proved effective in infections caused by Staph. aureus and the colon bacillus. Since reports indicate that it may irritate the kidney, the urine should be examined frequently for blood and casts when this drug is prescribed. It is contraindicated in hypertension.

The most important recent advance in chemotherapy is the use of the azo dyes of the amino acid group. The first experimentation was with prontosil, as reported by Domagk[10] in 1935, although there is historical evidence that it had been in the hands of certain clinicians in the Rhineland since 1933. These experiments were soon confirmed by French and English workers, and the drug was first used in this country in 1935. Early observers include Long and Bliss,[11] Helmholz,[12] Dees and Colston[13] and Bohlman.

Prontosil, the original effective dye substance, was soon supplemented by other salts, neoprontosil, sulfapyridine and, recently, sulfathiazole. Sulfanilamide is the active principle of the prontosils and from 60 to 75 per cent of ingested prontosil is reduced in the body and excreted in the form of sulfanilamide. Knowledge of the fate of the prontosils in the human body lags behind that which is known of sulfanilamide. No theory has yet been evolved which adequately explains the mode of action of these sulfur benzene derivatives. For the time being one must be content with the simple conception that they inhibit the growth of all susceptible microorganisms in the body. Efforts are being made continually to find a fuller explanation.

Sulfanilamide is of value in eradicating infection caused by almost all of the usual organisms.[14] Esch. coli, Aerobacter aerogenes, Salmonella, Shigella, Streptococcus hemolyticus and the gonococcus react most favorably. Infections caused by the proteus bacillus, the most severe urea splitting organism, respond favorably to sulfanilamide, but a stronger concentration in the urine is required than for most of the other organisms. Ammonium chloride should never be given in an effort to acidify the urine in the presence of an infection caused by proteus organisms, since it supplies additional urea to the proteus bacillus for the liberation of amonia, thereby encouraging the precipitation of urinary salts.[15] The response of staphylococcic infections to sulfanilamide is only fair. Str. faecalis is immune to it but, according to Helmholz,[16] responds favorably to sulfamethylthiazol. This drug, however, produced peripheral neuritis in a large percentage of the cases in which it was employed, and its use was soon discontinued. It was not made available to the profession. Staph. aureus is said to be susceptible to the action of sulfathiazole. According to Lowsley and Forsythe,[14] sulfapyridine does not appear to have a place in the field of urinary antiseptics.

Urinary infections in children respond well to sulfanilamide therapy.[17] This response is probably due to the fact that in them obstructive conditions such as calculi and new growths occur less frequently than in adults, and also to the fact that Str. faecalis, which is known to resist sulfanilamide, is most often absent. It is important to note that fluids are not restricted in treating chidren because of the ease with which dehydration and acidosis develop, especially in the infant. To compensate for the relatively great fluid intake, the amount given by mouth is large as compared to the dose for adults.

Sulfanilamide can be used advantageously in urinary infections in pregnancy. Herrold[18] in 1937 first reported that sulfanilamide is secreted in the prostatic fluid and that therapy with this drug brings about varying degrees of improvement in patients suffering from chronic prostatitis. His work has since been confirmed by many observers.

The common toxic manifestations of sulfanilamide therapy are dizzinesss and drug rashes, which may take any form. Photo-

sensitivity of the skin seems to be a factor in their production. Drug fever may occur at any time from the first to the thirtieth day, but is usually seen between the fifth and ninth day. It may be a remitting fever, a steadily mounting fever, or a low continuous fever. Since one expects the temperature of adequately treated patients to be normal the third day, the occurrence of fever when all clinical signs point toward a favorable termination of the disease, should immediately lead one to suspect that the rise in temperature is due to the drug. Headache and general malaise are often present during the period of therapy with the drug.

Among the toxic manifestations occurring less often are hepatitis, characterized by jaundice with anemia, leukopenia, granulocytopenia, acute agranulocytosis, acute hemolytic anemia, pupura hemorrhagica, pain in the joints, which may be mistaken for that of gonorrheal arthritis in the presence of a gonococcic infection, and hematuria, which is more frequent when sulfapyridine and sulfathiazole are employed. The hematuria is due to the deposition of acetylsulfapyridine or acetylsulfathiazole crystals in the tubules of the kidney, and on occasion, to the blocking of the renal pelvis by calculi composed of these substances. Hyperleukocytosis, occurring only when acute hemolytic anemia is present, represents an abnormal response of the bone marrow to a hurried call made on it by the rapidly developing anemia. All of the severe toxic reactions, and to a degree, the minor manifestations, call for an immediate discontinuance of the drug, the forcing of fluids and other appropriate measures.

In the early days of therapy with sulfanilamide it was thought unwise to employ other drug medication. However, accumulated data seem to prove that there is no contraindication to the administration of aspirin, phenobarbital, codeine, morphine, digitalis and arsphenamine when necessary in a given case. Certain of the saline laxatives containing sulfur are, however, still prohibited.

The dosage of sulfanilamide[11] and its compounds varies according to the severity of the disease, the amount of fluids ingested and the degree of kidney function. A simple dictum is never to give more than 1 Gm. of the drug daily for each 10 per cent of total phenolsulfonphthalein function. Carey suggested a dosage of 0.1 Gm. for each pound of body weight every 24 hours for infants, and half this dosage for children from 10 to 12 years old.

No single drug as yet discovered is an ideal antiseptic. There are individual idiosyncrasies to various drugs which necessitate a change of therapy if administration of a given drug does not effect appreciable results after a week's trial.

CONCLUSION

In every case the successful handling of urinary infections depends on three cardinal principles. (1) Ascertain if possible the infecting organism. (2) Be sure that the kidney function is adequate to secrete the antiseptic employed. (3) Correct any existing urinary stasis.

The drugs reviewed all have a place in the proper management of urologic conditions.

BIBLIOGRAPHY

1. Ducoudray, L.: Le Sanatol dans le traitement de la blenorrhagie, Paris thesis, Paris, 1900.
2. Winternitz, R.: Ueber die entzündungswidrige Wirkung ätherischer Oele, Arch. f. Exper. Path. u. Pharmakol. **46**:163-180, 1901.
3. Hinman, Frank: Urinary Antiseptics, J.A.M.A. **65**:1769-1775 (Nov. 20) 1915.
4. Campbell, M.F.: Infections of the Kidney, New York: Harper & Bros., 1931.
5. Levy, L. H., and Strauss, A.: Clinical and Bacterial Study of Hexamethylenamine as a Urinary Antiseptic, Arch. Int. Med. **14**:730-742 (Nov.) 1914.
6. Davis, E., and Sharpe, J. C.: A Comparison of Methenamine, Caprokol, Pyridium and Acraflavine as to Clinical Efficiency, J.A.M.A. **99**:2097-2100 (Dec. 17) 1932.
7. Helmholz, H. F.: The Effectiveness of Methenamine as a Urinary Antiseptic at Various Hydrogen Ion Concentrations, Proc. Staff Meet, Mayo Clin. **7**:374-376 (June 22) 1932.
8. Clark, A. L.: Bacilluria Under Ketogenic Treatment, J.A.M.A. **98**:1710-1711 (May 14) 1932.
9. Rosenheim, M. L.: Mandelic Acid in the Treatment of Urinary Infections, Lancet **1**:1032-1036 (May 4) 1935.
10. Domagk, G.: Ein Beitrag zur Chemotherapie der Bakteriellen Infektionen, Deutsche med Wchnschr. **61**: 250-253 (Feb. 15) 1935.
11. Long, P. H., and Bliss, E. A.: The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds, New York: Macmillan Co., 1939.
12. Helmholz, H. F.: Bacterial Power of the Urine After the Administration of Prontylin by Mouth, Proc. Staff Meet., Mayo Clin. **12**:244-245 (Apr.) 1937.
13. Dees, J. E., and Colston, J. A. C.: The Use of Sulfanilamide in Gonococci Infections, J.A.M.A. **108**: 1855-1858 (May 29) 1937.
14. Lowsley, O. S., and Forsythe, W. E., Jr.: Urinary Antiseptics, S. Clin. North America **20**:419-429 (Apr.) 1940.
15. Randall, A., and Hughes, B.: Therapeutic Management of Urinary Infections, Ann. Surg. **108**:903-909 (Nov.) 1938.
16. Helmholz, H. F.: Bactericidal Effect of Sulfathiazol and Sulfamethylthiazol in Bacteria Found in

Urinary Infections, Proc. Staff Meet., Mayo Clin. **15**: 65-68 (Jan. 31) 1940.

17. Summerfeldt, P., and Mitchell, D. R.: Treatment of Urinary Infections in Children with Sulfanilamide, J. Urol. **41**:59-63 (Jan.) 1939.

18. Herrold, R. D.: Treatment of Gonorrhea and Other Infections of the Urinary Tract with Sulfanilamide, Urol. & Cutan. Rev. **41**:468-471 (July) 1937.

308 Florida National Bank Bldg.

TREATMENT OF GONORRHEA WITH SULFANILAMIDE

H. J. IRELAND, M. D.
New York
and
C. LIPPOW, M. D.
Miami Beach

The use of sulfanilamide in the treatment of gonorrhea with reported fatalities has moved us to sound a word of caution. Recent reports made by English observers of the recurrence of gonorrhea after several months latency prompts us to recite our own method of treatment of the disease.

Sulfanilamide has been used by us since its advent, and at first we endeavored to obtain the rapid blood concentration of 4.7 mg. per hundred cubic centimeters suggested as most effective by Long and Bliss,[1] the drug being given at intervals of from three to four hours with a daily total of 80 grains. Toxic effects so common as scarcely to need repetition here, such as paleness, cyanosis, listlessness, drowsiness and photosensitive rash, were quickly noted. Their severity often compelled at least partial withdrawal of the drug. In those cases in which we were able to maintain the advocated dosage we were still unable to effect cures in the one or two weeks mentioned in reports on the drug. Moreover, we felt and still feel that gonorrhea is not a disease of such seriousness as to justify the subjection of the patient to the hazards of a medication with possible fatal consequences.

Too, the clinical responses obtained by this method of treatment were not always satisfactory, as evidenced by the following report of a case seen in consultation by one of us (CL):

In a 30 year old man treated for a first infection, the discharge appeared on the fourth day following exposure. Fifty grains of sulfanilamide daily was given by his physician for three weeks. The discharge diminished, but did not cease. At the end of the third week an elevation of temperature occurred accompanied by a swelling of the ankle, knee and carpometacarpal joints on the right side. In spite of the fairly large dosage used in this case a systemic involvement was not prevented.

We, therefore, set out to devise a method of treatment which would avoid the dangers and yet retain the advantages attending administration of the drug.

Since gonorrhea is from the time of the appearance of the urethral discharge definitely a systemic and not a local disease, the dominant role of the stimulated natural immunologic processes must not be lost sight of. In our opinion they are of tremendous importance in effecting a cure. Any other attempted curative procedures merely supplement their activity and enhance the healing process, at the same time lessening the morbidity.

It is well to recall that gonorrhea has been treated intelligently and successfully in the past and without fatalities attributable to either the method or medication used. The washing of the anterior urethra with freshly prepared argyrol serves to cleanse it mechanically of cellular debris and bacteria. With the advent of sulfanilamide this concept and its application have been forgotten or relegated to a role of minor importance, while chemotherapy in all its force has been loosed on the gonococcus with at least occasionally disasterous results to the host. Since peptones are present as a result of the destruction of tissue incident to the attack of the gonococcus on the urethral mucosa, it seems logical to suppose that the action of sulfanilamide would be enhanced by such mechanical removal of detritus.

It is not yet definitely known how sulfanilamide functions, that is, whether it is bactericidal, bacteriostatic, or antibody-producing in nature. The preponderance of evidence favors the bacteriostatic action, and it is believed that there is an interference with the nutritional requirements of the susceptible bacteria with again less action occurring in the presence of the peptones. (Lockwood and Lynch[2]).

Our method, now sufficiently tried to prove to us its efficacy, is based upon an evaluation of the foregoing concepts. Being unable to give sulfanilamide in sufficient dosage to attain the supposed maximum effect without producing toxic manifestations and furthermore being unwilling to subject our patients to the hazards mentioned, we have chosen the

From the Department of Urology, New York Polyclinic Hospital and Medical School.

middle way by combining sulfanilamide in small doses with anterior irrigations.

This treatment is, we believe, in accordance with the accepted purpose of any treatment in this disease, namely, the attempt at destruction of the gonococci wherever they are accessible, with the stimulaton of the general body processes and specifically those of the affected tissues against the infection. The symptoms then are alleviated, the incidence of complications lessened and the cure of the disease hastened.

Untoward effects are not seen in our patients, and no serious complications have developed. Also, we have been spared the dread that accompanies the administration of large doses of sulfanilamide, that of leukopenia developing with its possible fatal outcome.

We have noted that the natural defense mechanism so important in combating the infection is more effective when sulfanilamide is withheld for at least eight days subsequent to the appearance of the discharge. During this period we administer the irrigations alone. Sulfanilamide 30 grains daily is then given in divided doses for one week combined with the anterior irrigations, preferably of freshly prepared ten per cent solution of argyrol although a solution of the mild colloidal silver preparations may be used. This dose of sulfanilamide is either continued for the following week or reduced to 20 grains a day, depending upon the clinical response.

The report of a typical case will best illustrate our method and its results:

In a patient aged 34 with a second infection and exposure seven days previously, the discharge appeared on the third day, thick, purulent and positive for gonococci. Anterior irrigation with one-fourth per cent protargol was carried out three times daily for seven days; sulfanilamide 30 grains a day in divided doses was given beginning on the eighth day after the appearance of the discharge, and anterior irrigations were continued. On the fifteenth day the discharge disappeared though the centrifuged first glass of urine contained numerous pus cells with occasional intracelilular and extracellular diplococci. The patient's systemic condition was normal as well as the white cell count. Twenty grains of sulfanilamide was then given in four 5 grain doses, and the urethra was irrigated twice daily. At the end of the third week the urine was clear of diplococci though occasional pus cells were still present in the centrifuged specimen of urine. Anterior irrigations were then stopped, but sulfanilamide 20 grains a day was continued for one more week. Thereafter the patient was observed for a period of two months during which time provocation on several occasions proved that the patient had been cured.

The dosage of 20 grains may be continued for weeks if needed without causing any untoward reaction. There follows the report of a case in which the patient required prolonged treatment.

Examination of a man aged 21 with a first infection and discharge appearing on the third day after exposure revealed profuse discharge, swelling and edema of the prepuce (paraphimosis). Multiple verrucae were noted about the meatus and glands, also on the inner surface of the prepuce. Since irrigations could not be given, hot local applications were administered together with 30 grains of sulfanilamide daily for four days. On the fifth day it was necessary to circumcise and fulgerize the verrucae since the discharge, while lessening, was still profuse. The circumcision wound healed rapidly. The dosage of 30 grains was maintained for another week and then reduced to 20 grains, and this treatment was combined with anterior irrigations. Verrucae persisted within the meatus, but disappeared upon a single application of trichloracetic acid. The combined treatment rapidly lessened the infection to the point of clearing the urine completely. The dosage of 20 grains daily was continued for over a month because of the concomitant lack of drainage owing to the verrucae and paraphimosis present. Throughout the prolonged period of administration of this drug in small amounts the patient was well, continued to work and showed clinically no toxic symptoms.

All types of provocation are used by us; they include alcohol ingestion, silver instillation, instrumentation and other means. Relapses and complications do not occur in our cases even though the maximum dose of 30 grains daily is not exceeded.

We are unable to report any five day or two week cures with this type of treatment such as others have claimed following the administration of large doses, nor do we feel that such results are often obtainable. We have been gratified, however, in having patients able to pursue their normal occupations during the period of treatment unhampered by the physical and mental sluggishness and retardation so common to those taking a higher dosage. Grave morbidity, hematuria, stone formation, blood dyscrasias and other complications associated with the administration of some of the related compounds such as sylfapyridine and sulfathiazol have neither occurred nor been feared. It is our observation that the combination of these drugs with each other or with sulfanilamide is to be avoided.

Our conclusion is that sulfanilamide, if it is to be effective in the treatment of gonorrhea, should be administered in the smaller dosage indicated herein; if no appreciable improvement is noted within two weeks, the drug should be discontinued.

SUMMARY

A brief discussion of the present concept of the mode of action and use of sulfanilamide in

gonococcic infections is given. The importance of not losing sight of the time-proven worth of anterior irrigations is stressed. Our observations and conclusions are given; they agree in the main with those of the English clinicians working in this field, but differ in that we do not favor the high dosage employed by them. Large doses do not prevent systemic involvement. Typical cases treated by us, the method we use and the results obtained are presented with an attempt at rationalization of the employed procedure. Permanency of cure, avoidance of complications and promotion of the constitutional well-being of the patient during treatment and afterward are the primary objectives of treatment. The time factor should not be considered an element of prime importance.

REFERENCES

1. Long, H. P., and Bliss, E. A.: Observation upon Mode of Action and Clinical Use of Sulfanilamide in Urinary Tract Infections, South. M. J. **31**: 308-315 (Mar.) 1938.

2. Lockwood, J. S., and Lynch, H. M.: Mechanism of Action of Sulfanilamide; Influence of Proteolytic Products on Effectiveness of Sulfanilamide, J.A.M.A. **114**: 935-940 (Mar. 16) 1940.

THE VALUE OF INTRAPLEURAL PNEUMONOLYSIS IN ARTIFICIAL PNEUMOTHORAX THERAPY IN PULMONARY TUBERCULOSIS

Thomas C. Black, M. D.
Orlando

It has long been recognized that adhesive pleuritis, occurring in varying degree from a few string adhesions to extensive areas in which the lung is adherent to the chest wall, is the main cause of an inadequate pneumothorax. Alexander[1] stated that in from 42 to 50 per cent of the cases in which it is employed, artificial pneumothorax is ineffective as such. Any procedure that can change it in some instances into an effective compression is indeed worthwhile.

Since Jacobaeus[1] reported the first successful intrapleural pneumonolysis in 1915, this procedure has been gradually more and more widely adopted as an integral part of artificial pneumothorax, the most important type of collapse therapy used in the treatment of pulmonary tuberculosis. To illustrate this relationship, a summary has been made of the cases in which intrapleural pneumonolysis has been performed on the white patients at the Florida State Tuberculosis Sanatorium. The electrosurgical method was employed in all cases of this series, and the Julian Moore instruments were used.

Following the induction of artificial pneumothorax the operation may be done at any time after sufficient compression has been produced to allow manipulation of the instruments, but it is usually performed from two to six months after the initial pneumothorax. This time is desirable as it allows for stabilization of the compression and of the mediastinum together with some stretching of the adhesions, and permits performance of the operation prior to vacularization of the adhesions or spread of the infection.

Pneumonolysis is indicated: (1) in patients with adhesions that prevent an effective collapse, thus interfering with control of the infection because of insufficient relaxation of the diseased area; (2) in patients in whom there is a tendency toward loss of collapse as a result of contraction of adhesions; and (3) in patients in whom it is necessary to improve the selectivity of collapse and conserve good lung tissue.

In all cases with adhesions careful study of stereoroentgenographs provides much information of an approximate nature only. It is often the case that one finds many more adhesions by direct examination than appeared likely on previous inspection of the roentgenograms. Any patient in whom it appears possible to make ineffective pneumothorax effective should have the benefit of an exploratory pneumonolysis. If this operation seems too hazardous, then other forms of collapse therapy may be considered.

During the period from February 1938 to July 1940, 308 white patients received treatment by artificial pneumothorax in some degree. In 84 it was discontinued because of unsatisfactory collapse. In 29 pneumothorax was performed on one side, and it was attempted or further collapse measures were carried out in the contralateral lung of these patients. Bilateral pneumothorax was successfully carried out in 32 patients; this group will be considered separately. For 163 patients treatment by pneumothorax was successful. Thus 224 of the original patients received treatments by pneumothorax. Since pneumonolysis was attempted in 72 of these patients, a satisfactory collapse was, therefore, obtained by pneumothorax alone in 152 pa-

tients, or 49.3 per cent of the entire series. Of these, 69, or 22.4 per cent of the 308 patients, had a successful lysis.

TABLE 1

STAGE	Successful Pneumo. Pts.	Pts. Receiving Lysis	No. Stages Operation
Minimal	5	2	2
Moderately Advanced	51	9	9
Far Advanced	136	53	64
Total	192	64	75

In 5 of the 32 patients subjected to bilateral pneumothorax, in all of whom the disease was far advanced, bilateral pneumonolysis was performed in twelve stages. Thus a total of 69 patients had 87 operations on 74 lungs. Following exploratory thoracoscopy in 3 others, pneumothorax was discontinued.

TABLE 2

STAGE	Satisfactory Collapse		Unsatisfactory Collapse	
	No. Pts.	Lungs	No. Pts.	Lungs
Minimal	2	2	0	0
Moderately Advanced	9	9	0	0
Far Advanced	40	40	13	13
Total	51	51	13	13
Bilateral Far Adv.	5	10	0	0
Total	56	61—82.4%	13	13—17.6%

TABLE 3

No. Pts.	Complication	% 74 Lungs	% 87 Op.
1	Empyema (Tbc.)	1.35	1.14
4	Oblit. Pleuritis	5.4	4.56
1	Hemorrhage	1.35	1.14

Examination of the sputum of the 2 patients with minimal disease and 2 in whom it was moderately advanced gave negative results before operation, but relaxation of the diseased area previously under tension and a satisfactory result were obtained. In the other 7 patients with the disease in the moderately advanced stage, sputum conversion and satisfactory collapse followed pneumonolysis. In 10 of the 53 patients in whom the disease was far advanced, sputum conversion had taken place prior to operation. Despite this, cavitation was still evident in 3, and in all 10 diseased areas under tension were relaxed with pneumonolysis, thus improving the collapse. Sputum conversion occurred in 29 patients. Severing adhesions produced satisfactory collapse in 24 patients; with 5 the collapse was unsatisfactory. Of the 13 patients remaining in whom sputum conversion did not occur, a satisfactory collapse and an improved condition resulted in 3, 2 were unimproved after satisfactory collapse and in 6 pneumothorax was discontinued after unsatisfactory collapse, as was the case with 1 patient in whom tuberculous empyema developed. One patient died from postoperative hemorrhage. In the 5 patients treated bilaterally sputum conversion and a satisfactory compression of both lungs occurred in each instance.

In a number of patients a transient pleural effusion developed that required no treatment. There were a few patients in whom larger effusions developed that required aspiration on one or more occasions before the fluid was absorbed; the one exception was the patient with tuberculous empyema. In four patients an obliterative pleuritis occurred.

Of the 5 patients treated bilaterally, 1 was discharged with the disease apparently arrested; the other 4 in residence are improved. Of the 64 patients receiving treatment unilaterally, in 9 or 14 per cent the disease is apparently arrested; 45 or 70 per cent are improved, 9 or 14 per cent are unimproved and 1 or 1.5 per cent is dead.

TABLE 4

STAGE	Status of Pts. Discharged					Status of Pts. Still in Residence	
	Ap. Arrest	Quiescent	Improved	Unimproved	Dead	Improved	Unimproved
Min.	0					2	
Mod. Adv.	4					5	
Far Adv.	5		1		1	37	9
Total	9—14%	0	1—1.56%	0	1—1.56%	44—68.7%	9—14%

CONCLUSION

1. In a high percentage of cases unsatisfactory pneumothorax may be made effectual when intrapleural pneumonolysis is possible.
2. Adhesions may be severed early in the course of artificial pneumothorax.
3. The end results of intrapleural pneumonolysis must be finally evaluated as artificial pneumothorax statistics.

REFERENCE

1. Alexander, J.: The Collapse Therapy of Pulmonary Tuberculosis, Springfield, Ill.: C. C. Thomas, 1937.

State Tuberculosis Sanatorium

Florida Medical Association, Inc.

Officers and Committees

OFFICERS

WALTER C. JONES, M.D., President ..... *Miami*
GILBERT S. OSINCUP, M.D., President-Elect ..... *Orlando*
LUTHER W. HOLLOWAY, M.D., 1st Vice-Pres. ..... *Jacksonville*
FREDERICK K. HERPEL, M.D., 2nd Vice-Pres. *W. Palm Beach*
WALTER C. PAYNE, M.D., 3rd Vice-Pres. ..... *Pensacola*
SHALER RICHARDSON, M.D., Sec'y-Treas. ..... *Jacksonville*

MANAGING DIRECTOR

STEWART G. THOMPSON, D.P.H. ..... *Jacksonville*

EXECUTIVE

LOUIE M. LIMBAUGH, M.D., Chairman, "C," '44 *Jacksonville*
J. ROCHER CHAPPELL, M.D., "E," '43 ..... *Orlando*
GEORGE L. COOK, M.D., "D," '42 ..... *Tampa*
FREDERICK K. HERPEL, M.D., "F," '43 ... *West Palm Beach*
WALTER C. PAYNE, M.D., "A," '44 ..... *Pensacola*
WILLIAM C. THOMAS, M.D., "B," '42 ..... *Gainesville*
WALTER C. JONES, M.D. (Ex-officio) ..... *Miami*
SHALER RICHARDSON, M.D. (Ex-officio) ..... *Jacksonville*
STEWART G. THOMPSON, D.P.H. (Advisory) .... *Jacksonville*

SCIENTIFIC WORK

H. E. WHITE, M.D., Chairman, "C," '43 .... *St. Augustine*
LELAND F. CARLTON, M.D., "D," '42 ..... *Tampa*
CHARLES J. COLLINS, M.D., "E," '43 ..... *Orlando*
ROBERT B. HARKNESS, M.D., "B," '42 ..... *Lake City*
HOMER L. PEARSON, M.D., "F," '44 ..... *Miami*
JAMES H. POUND, M.D., "A," '44 ..... *Tallahassee*

LEGISLATION AND PUBLIC POLICY

H. D. VAN SCHAICK, M.D., Chairman, "C," '43 *Jacksonville*
LAURIE J. ARNOLD, JR., M.D., "B," '44 ..... *Lake City*
HORACE A. DAY, M.D., "E," '44 ..... *Orlando*
WHITMAN C. MCCONNELL, M.D., "D," '42 .. *St. Petersburg*
BRICEY M. RHODES, M.D., "A," '42 ..... *Tallahassee*
JOSEPH S. STEWART, M.D., "F," '43 ..... *Miami*

MEDICAL EDUCATION AND HOSPITALS

JOHN S. HELMS, JR., M.D., Chairman, "D," '42 .... *Tampa*
REDDIN BRITT, M.D., "C," '42 ..... *St. Augustine*
ROBERT D. FERGUSON, M.D., "B," '43 ..... *Ocala*
J. N. MCLANE, M.D., "A," '44 ..... *Pensacola*
CAYETANO PANETTIERE, M. D., "F," '44 ..... *Miami Beach*
WALTER A. WEED, M.D., "E," '43 ..... *Lakeland*

PUBLIC RELATIONS

J. RALSTON WELLS, M.D., Chairman, "C," '42 *Daytona Beach*
WILBUR L. ASHTON, M.D., "E," '42 ..... *Jacksonville*
SIDNEY G. KENNEDY, M.D., "A," '43 ..... *Pensacola*
BAILEY B. SORY, JR., M.D., "F," '44 ..... *Palm Beach*
JAMES L. STRANGE, M.D., "B," '44 ..... *McIntosh*
HARPER E. WHITAKER, M.D., "D," '43 ..... *Tampa*

NECROLOGY

HUBERT A. BARGE, M.D., Chairman, "F," '42 ..... *Miami*
HAYNSWORTH D. CLARK, M.D., "E," '42 ..... *Ft. Pierce*
AUGUSTUS E. CONTER, M.D., "A," '43 ..... *Apalachicola*
GEORGE R. CREEKMORE, M.D., "B," '43 ..... *Brooksville*
JULIAN L. HARGROVE, M.D., "D," '44 ..... *Bartow*
ARTHUR J. LOGIE, M.D., "C," '44 ..... *Jacksonville*

MEDICAL POSTGRADUATE COURSE

TURNER Z. CASON, M.D., Chairman, "C," 42 ... *Jacksonville*
HERBERT L. BRYANS, M.D., "A," '43 ..... *Pensacola*
W. WELLINGTON GEORGE, M.D., "F," '43 *West Palm Beach*
FRANK D. GRAY, M.D., "E," '44 ..... *Orlando*
DAVID R. MURPHEY, JR., M.D., "D," '44 ..... *Tampa*
GEORGE C. TILLMAN, M.D., "B," '42 ..... *Gainesville*

CANCER CONTROL

ALFRED G. LEVIN, M.D., Chairman, "F," '44 ..... *Miami*
JAMES M. HOFFMAN, M.D., "A," '42 ..... *Pensacola*
HEWITT JOHNSTON, M.D., "E," '43 ..... *Orlando*
J. N. MOORE, M.D., "B," '44 ..... *Ocala*
R. W. S. OWEN, M.D., "D," '43 ..... *St. Petersburg*
HARRY A. PEYTON, M.D., "C," '42 ..... *Jacksonville*

MEDICAL ECONOMICS

H. A. WALKER, M.D., Chairman, "F," '44 .... *Miami Beach*
EDWIN H. ANDREWS, M.D., "B," '44 ..... *Gainesville*
ROBERT P. HENDERSON, M.D., "E," '43 ..... *Orlando*
EDWARD JELKS, M.D., "C," '42 ..... *Jacksonville*
JOSEPH W. TAYLOR, M.D., "D," '42 ..... *Tampa*
COURTLAND D. WHITAKER, M.D., "A," '43 ..... *Marianna*

VENEREAL DISEASE CONTROL

ELIJAH T. SELLERS, M.D., Chairman, "C," '42 *Jacksonville*
ELMO D. FRENCH, M.D., "F," '44 ..... *Miami*
ALVIN L. MILLS, M.D., "D," '44 ..... *St. Petersburg*
LOUIS M. ORR, II, M.D., "E," '42 ..... *Orlando*
JOHN H. THOMAS, M.D., "B," '43 ..... *Gainesville*
JOE I. TURBERVILLE, M.D., "A," '43 ..... *Century*

INTERRELATIONSHIP

HENRY J. PEAVY, M.D., Chairman, "F," '44 .. *Ft. Lauderdale*
ISAAC M. HAY, M.D., "E," '42 ..... *Melbourne*
JOHN E. MAINES, JR., M.D., "B," '44 ..... *Gainesville*
GEORGE C. OVERSTREET, M.D., "D," '42 ..... *Lakeland*
EDWIN C. SWIFT, M.D., "C," '43 ..... *Jacksonville*
RUFUS THAMES, M.D., "A," '43 ..... *Milton*

TUBERCULOSIS AND PUBLIC HEALTH

M. JAY FLIPSE, M.D., Chairman, "F," '42 ..... *Miami*
WILLIAM C. BLAKE, M.D., "D," '42 ..... *Tampa*
J. MAXEY DELL, JR., M.D., "B," '44 ..... *Gainesville*
DUNCAN T. MCEWAN, M.D., "E," '43 ..... *Orlando*
ROBERT G. NOBLES, M.D., "A," '44 ..... *Pensacola*
LUDO VON MEYSENBUG, M.D., "C," '43 ..... *Daytona Beach*

STATE CONTROLLED MEDICAL INSTITUTIONS

ROLLIN D. THOMPSON, M.D., Chairman, "E," '44 .. *Orlando*
HARRY S. HOWELL, M.D., "B," '43 ..... *Lake City*
PAUL KELLS, M.D., "F," '43 ..... *Miami*
ERNEST B. MILAM, M.D., "C," '42 ..... *Jacksonville*
WILLAM D. ROGERS, M.D., "A," '44 ..... *Chattahoochee*
WILLIAM M. ROWLETT, M.D., "D," '42 ..... *Tampa*

MATERNAL WELFARE

LAUCHLIN M. ROZIER, M.D., Chairman, "F," '42 *W. P. Bch.*
LAURIE L. DOZIER, M.D., "A," '44 ..... *Tallahassee*
I. M. HAY, M.D., "E," '43 ..... *Melbourne*
W. WARDLAW JONES, M.D., "B," '44 ..... *Dade City*
ROBERT G. NELSON, M.D., "D," '42 ..... *Tampa*
FERDINAND RICHARDS, M.D., "C," '43 ..... *Jacksonville*

CHILD HEALTH

W. W. QUILLIAN, M.D., Chairman, "F," '44 .. *Coral Gables*
THOMAS M. PALMER, M.D., "C," '43 ..... *Jacksonville*
EUGENE G. PEEK, M. D., "B," '42 ..... *Ocala*
COUNCILL C. RUDOLPH, M.D., "D," '42 ..... *St. Petersburg*
WILLIAM E. SINCLAIR, M.D., "E," '44 ..... *Orlando*
ALVYN W. WHITE, M.D., "A," '43 ..... *Pensacola*

ADVISORY TO WOMAN'S AUXILIARY

GORDON H. IRA, M.D., Chairman, "C," '42 ..... *Jacksonville*
JAMES L. CHALKER, M.D., "B," '42 ..... *Ocala*
LUTHER C. FISHER, JR., M.D., "A," '43 ..... *Pensacola*
JOHN D. HAGOOD, M.D., "D," '43 ..... *Clearwater*
LAWRENCE C. INGRAM, M.D., "E," '44 ..... *Orlando*
ARTHUR L. WALTERS, M.D., "F," '44 ..... *Miami Beach*

COUNCILOR DISTRICTS AND COUNCILORS

Twelfth—W. DUNCAN OWENS, M.D., Chmn., '43 *Miami Bch.*
First—WILLIAM C. ROBERTS, M.D., '42 ..... *Panama City*
Second—C. D. WHITAKER, M.D., '43 ..... *Marianna*
Third—J. M. PRICE, M.D., '43 ..... *Live Oak*
Fourth—ALVA T. COBB, M.D., 42 ..... *Gainesville*
Fifth—LUCIEN Y. DYRENFORTH, M.D., '43 ..... *Jacksonville*
Sixth—MAXIMILIAN STERN, M.D., '42 ..... *Daytona Beach*
Seventh—JOHN R. BOLING, M.D., '43 ..... *Tampa*
Eighth—HOWARD V. WEEMS, M.D., '42 ..... *Sebring*
Ninth—CARL D. HOFFMANN, M.D., '42 ..... *Orlando*
Tenth—E. B. HARDEE, M.D., '43 ..... *Vero Beach*
Eleventh—ROBERT L. ELLISTON, M.D., '42 .. *Ft. Lauderdale*

REPRESENTATIVES TO INDUSTRIAL COUNCIL

JULIUS C. DAVIS, M.D., Chairman, "A," '43 ..... *Quincy*
THOMAS H. BATES, M.D., "B," '43 ..... *Lake City*
R. RENFRO DUKE, M.D., "D," '44 ..... *Tampa*
WILLIAM S. MANNING, M.D., "C," '42 ..... *Jacksonville*
RICHARD H. WALKER, JR., M.D., "E," '44 ..... *Orlando*
ARTHUR H. WEILAND, M.D., "F," '42 ..... *Coral Gables*

MEDICAL PREPAREDNESS

EDWARD JELKS, M.D., Chairman ..... *Jacksonville*
WALTER C. JONES, M.D., ... *Miami*
SHALER RICHARDSON, M.D. ..... *Jacksonville*
JAMES E. PAULLIN, M.D. (A.M.A. ex-officio) ..... *Atlanta*

A. M. A. HOUSE OF DELEGATES

EDWARD JELKS, M.D., Delegate ..... *Jacksonville*
HERBERT L. BRYANS, M.D., Alternate ..... *Pensacola*
(Terms expire Dec. 31, 1942)

MEREDITH MALLORY, M.D., Delegate ..... *Orlando*
GEORGE M. DAWSON, M.D., Alternate .... *West Palm Beach*
(Terms expire Dec. 31, 1943)

Committees—Continued on next page

Committees — *Continued*

GENERAL ADVISORY BOARD OF PAST PRESIDENTS

William E. Ross, M.D., Chairman, 1919 ..... *Jacksonville*
W. Henry Spiers, M.D., Secretary, 1938 ..... *Orlando*
J. Harris Pierpont, M.D., 1890, 1901, 1902 ..... *Pensacola*
Henry E. Palmer, M.D., 1909 ..... *Tallahassee*
Robert H. McGinnis, M.D., 1915 ..... *Jacksonville*
Frederick J. Walter, M.D., 1918 ..... *San Diego, Calif.*
William P. Adamson, M.D., 1920 ..... *Tampa*
H. Marshall Taylor, M.D., 1923 ..... *Jacksonville*
John C. Vinson, M.D., 1924 ..... *Tampa*
John S. McEwan, M.D., 1925 ..... *Orlando*
H. Mason Smith, M.D., 1926 ..... *Tampa*
John A. Simmons, M.D., 1927 ..... *Arcadia*
Frederick J. Waas, M.D., 1928 ..... *Jacksonville*
Henry C. Dozier, M.D., 1929 ..... *Ocala*
Julius C. Davis, M.D., 1930 ..... *Quincy*
Gerry R. Holden, M.D., 1932 ..... *Jacksonville*
William M. Rowlett. M.D., 1933 ..... *Tampa*
Homer L. Pearson, M.D., 1934 ..... *Miami*
Herbert L. Bryans, M.D., 1935 ..... *Pensacola*
Orion O. Feaster, M.D., 1936 ..... *St. Petersburg*
Edward Jelks, M.D., 1937 ..... *Jacksonville*
Leigh F. Robinson, M.D., 1939 ..... *Ft. Lauderdale*
J. Sam Turberville, M.D., 1940 ..... *Century*

The Journal of the Florida Medical Association, Inc.

Owned and published by the Florida Medical Association, Inc.

Accepted for mailing at special rate of postage provided for in Section 1103, Act of Congress of October 3, 1917; authorized October 16, 1918
Published monthly at Jacksonville, Florida. Price $3.00 a year. Single numbers, 30 cents
This Journal is not responsible for the opinions and statements of its contributors
Address Journal of the Florida Medical Association, Inc., Box 1018 Jacksonville, Fla. Telephone 5-0577

EDITOR
Shaler Richardson, M.D.

MANAGING DIRECTOR
Stewart G. Thompson, D.P.H.

ASSOCIATE EDITORS
Spencer A. Folsom, M.D. ..... *Orlando*
Frank C. Metzger, M.D. ..... *Tampa*
Homer L. Pearson, M.D. ..... *Miami*
J. H. Pound, M.D. ..... *Tallahassee*
W. McL. Shaw, M.D. ..... *Jacksonville*

COMMITTEE ON PUBLICATION
George D. Lilly, M.D., Chairman ..... *Miami*
Shaler Richardson, M.D. ..... *Jacksonville*
Herman Watson, M.D. ..... *Lakeland*

ABSTRACT DEPARTMENT
Kenneth A. Morris, M.D., Chairman ..... *Jacksonville*
Theodore F. Hahn, M.D. ..... *DeLand*
Councill C. Rudolph, M.D. ..... *St. Petersburg*

YOUR DISTRICT MEETING

Many factors are important in building up a successful practice, among them ability, training, personality, and a wide professional acquaintanceship. Though the last named is, of course, the easiest to acquire, its importance was understood by the founders of the Association who, in drawing up the constitution of the organization, stated that one of its purposes "shall be to federate and bring into one compact organization the entire medical profession of the State of Florida . . . with a view to the promotion of friendly intercourse among physicians and to the guarding and furthering of their material interests."

The need of affording opportunities for physicians to exchange ideas and enlarge their acquaintanceship was further recognized by more recent workers in the Association who instituted the district meetings for this purpose.

Especially at this time is it important to keep in the foreground. Many of our older members have lost their young associates to the military service and are in need of assistance. Many new members have joined the Association whose positions are not yet secure and who can benefit greatly by close association with our older members. To all of these the district meetings fill a special need.

The councilors, under the chairmanship of Dr. W. Duncan Owens, and the entertaining societies have arranged interesting scientific programs and excellent entertainment for members, guests and ladies at the six meetings this fall. Come to one or more of these meetings and find stimulation through the exchange of ideas with your colleagues. Make a note of the date and place of the meetings you plan to attend.

"A" Tallahassee, October 2
"B" Gainesville, October 3
"C" St. Augustine, October 4
"F" Hollywood, October 30
"D" Bartow, October 31
"E" Orlando, November 1

DANGER OF EYE INJURIES FROM BLASTING CAPS

Calling attention to the fact that blasting caps and detonating fuses are dangerous playthings for children and may cause blindness or serious eye injuries, a warning to parents concerning this hazard was issued recently by Mrs. Eleanor Brown Merrill, Executive Director of the National Society for the Prevention of Blindness. Mrs. Merrill said:

More than 150 juvenile casualties of this kind, including 24 eye injuries, were reported last year by the Institute of Makers of Explosives. The National Society for the Prevention of Blindness is glad to cooperate with the Institute in its educational campaign to reduce the number of these tragedies.

The great majority of such accidents to children take place either in rural localities or near small towns, and about 90 per cent of the victims are boys. Farmers, construction forces, mine workers and railway men who use explosives can help save children from death and serious injury by storing blasting caps and fuses under lock and key, and by being careful not to discard such caps where children can get them.

CHATTAHOOCHEE VALLEY MEDICAL SOCIETY

The Chattahoochee Valley Medical Society, comprised of leading physicians and surgeons from Florida, Georgia and Alabama, held its forty-first annual session in Jacksonville, July 31 to August 2, inclusive. The comprehensive scientific program consisted of operative and dry clinics, articles, and round table discussions. The following Florida physicians contributed to the program:

Dr. Edward Jelks, Jacksonville, operative clinic, "Thyroidectomy."

Dr. Walter C. Jones, Miami, dry clinic, "Perineal Repair."

Dr. Julian Gammon, Jacksonville, paper, "Rheumatoid Arthritis."

Dr. Louis M. Orr, Orlando, paper, "Treatment of Cancer of the Penis; Modification of the Radical Operation."

Dr. T. Z. Cason, Jacksonville, presided at a round table luncheon when questions based on preceding clinics and papers were discussed.

Dr. J. Sam Turberville of Century presided at a conference at which surgical questions were discussed.

Dr. Shaler Richardson, Jacksonville, paper, "Some Points Concerning Retinal Detachment."

Dr. Tracy Haverfield, Jacksonville, paper, "Cordotomy as a Procedure for the Relief of Intractable Pain."

Dr. Duncan Owens, Miami Beach, presented "Postoperative Hormonal Therapy to Spare Remaining Ovarian Tissue."

Dr. E. V. Anderson of Pensacola, "Sulfathiazole in the Treatment of Infectious Diarrheas."

Dr. Frederick J. Waas, Jacksonville, acted as toastmaster at the annual dinner at which time Dr. Clayton E. Royce of Jacksonville gave the W. J. Love Memorial Address, entitled, "The Approach."

Dr. Herbert E. White of St. Augustine was elected president of the Society, succeeding Dr. Frank K. Boland of Atlanta. Other officers elected were Dr. D. Henry Poer of Atlanta, first vice president to succeed Dr. William F. Harper of Selma, Ala.; Dr. D. C. Donald of Birmingham, second vice president to succeed Dr. White, the new president; Dr. Robert B. McIver of Jacksonville, re-elected secretary-treasurer, and Mrs. Eloise L. Moran of Jacksonville, re-elected executive secretary. Birmingham was chosen as the site for the 1942 session.

EXAMINATIONS FOR MEDICAL POSITIONS ANNOUNCED BY CIVIL SERVICE COMMISSION

Examinations for three types of medical positions in the Government service have just been announced by the Civil Service Commission. This is another indication of the great demand for technically trained personnel of every kind in the defense program. Each of these positions has been open to competition within the past year, but the demand grows even faster than the supply.

Junior medical officer positions at $2,000 a year will be filled at St. Elizabeth's Hospital in Washington, D. C. There are two types of internship: Rotating and Psychiatric Resident. The rotating internship consists of 4 months of surgery, acute medical service, and of chronic medical service; 2 months of obstetrics and pediatrics, on affiliation; 3 months of general laboratory work; and 6 months of psychiatry. To qualify, applicants must be fourth-year students in a Class A medical school. Applicants must show completion of the course prior to June 30, 1942, before they may enter on duty. Graduates in medicine who have already served an accredited rotating internship are offered a postgraduate internship of 1 year of psychiatry (A. M. A. Classification 2, Type B). To qualify for this type of appointment, applicants must have completed their fourth year of study in a Class A medical school subsequent to December 1935 and must have either a B. M. or M. D. degree. Applications will be accepted at the Commission's Washington office until November 15, 1941, and will be rated as soon as practicable after receipt.

Medical technical assistant positions at $2,000 a year and medical guard-attendant positions at $1,620 a year will be filled in the Mental Hygiene Division of the U. S. Public Health Service. Applicants must be registered graduate nurses, or have been honorably discharged (within the 10 years immediately preceding date of receipt of application) from active service in the Medical Corps of the Army or Navy, or have had 3 years' service as guard-attendant in a Federal penal or correctional institution. In addition, for the technical assistant, applicants must show that their experience has included one year of responsible training or experience in Clinical Laboratory Technique, Pharmacy, or X-ray Laboratory Technique. Applications will be accepted until further notice. Persons who were rated eligible for these two positions in the examination which closed in February of this year need not apply for this new examination as eligibles from both examinations will be combined on the new register.

Further information and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission in Washington. Qualified persons are urged to file their applications at once.

SULFANILAMIDE EFFECTIVE AGAINST FLARE-UPS OF RHEUMATIC FEVER

Evidence that the maintenance of certain levels of sulfanilamide in the blood by means of administering small daily doses is effective in preventing hemolytic streptococcic infections and the consequent flare-ups of rheumatic fever in persons known to be subject to recurrences is presented in *The Journal of the American Medical Association* for July 19 by

A. F. Coburn, M. D., and L. V. Moore, M. D., New York.

The two authors point out that a previous study had indicated that the maintenance throughout the school year of a certain level of sulfanilamide in the blood protected the children against streptococcic pharyngitis (inflammation of the pharynx) and rheumatic recrudescences. They say:

One factor that it was impossible to control in the New York study was the increasing age of the group. Between 1936 and 1939 many of the children passed puberty, and, as is well recognized, rheumatic subjects tend to have fewer recrudescences in adolescence than during childhood. It was therefore possible to regard the increasing age of our patients as largely contributory to the decreasing incidence of rheumatic fever.

One way of determining whether increasing age was significant in our results was to withdraw sulfanilamide from the patients who received prophylactic doses in the period 1936-1939. This we did during 1939-1940 to a group of 100 patients, mostly adolescents. None of these 100 patients had had streptococcic pharyngitis or manifestations of rheumatic activity while they received sulfanilamide. Since the prophylactic doses have been discontinued the patients have lived in the same environment and have received the same clinical and laboratory examinations as previously reported. Thirty-two of these 100 patients contracted hemolytic streptococcic pharyngitis during the first twelve months following the withdrawal of sulfanilamide, and in 40 per cent of these untreated, infected patients rheumatic fever developed. . . .

These follow-up observations show that the rheumatic children who escaped streptococcic infection and rheumatic activity while receiving sulfanilamide prophylactically between 1936 and 1939 were still susceptible in 1940 to both streptococcic pharyngitis and rheumatic fever.

It seems justifiable, therefore, to conclude that the absence of rheumatic recrudescence in the sulfanilamide-treated subjects previously reported was due to the drug and not to a change in susceptibility. It is also clear that the prophylactic effect of sulfanilamide does not exert any beneficial effect beyond the period of treatment.

NEW TEST FOR DETERMINING ADEQUACY OF CONNECTING VARICOSE VEINS

A test that determines within two minutes whether the branches of the veins connecting varicose veins with each other are functionally adequate is reported in *The Journal of the American Medical Association* for July 12 by Gerald H. Pratt, M. D., New York. The test is valuable in that it indicates whether and at what point a communicating vein will have to be ligated or shortened by surgically resecting part of it.

Dr. Pratt has used the test more than one thousand times and he says that in more than "three hundred resections [of these veins] it has successfully proved its value. . . ." Briefly the test is as follows:

With the patient lying down, the leg to be tested is elevated and with light massage the veins are emptied [of blood]. A tourniquet is placed sufficiently high in the thigh to close off the saphenous vein [the large vein extending from the foot to the groin]. An Ace [elastic] bandage is then applied from the toes to the tourniquet. The patient then stands up and the Ace bandage is slowly unwound from above down. With the tourniquet above preventing reflux of femoral blood [blood in the thigh vein] through the saphenous valve and with the Ace bandage below compressing the remainder of the saphenous vein, a bulge or blowout indicates an incompetent communicating branch vein. Such an area is marked with an indelible pencil and is a point where a secondary ligation [the large saphenous vein is the primary ligation] will be required. In a limb in which there are many such blowouts a second Ace bandage is applied from above down. As the first Ace bandage is slowly removed, a blowout appearing between the two Ace bandages is thus a new one and must also be marked and resected.

While in most instances there are only one or two such blowouts, occasionally, the author points out, one finds four or five. Failure to remove such other blowouts results in recurrences.

BIRTHS, MARRIAGES AND DEATHS

BIRTHS

Dr. and Mrs. Charles W. Boyd of Jacksonville announce the birth of a son, George Ross, on July 8.

MARRIAGES

Dr. Courtland D. Whitaker of Marianna and Miss Mildred Zeagler of Sylvania, Ga., were married July 6.

DEATHS

Dr. J. Kent Johnston of Tallahassee died on July 15.

* * *

Dr. Ralph N. Greene of Coral Gables died on Aug. 1.

STATE NEWS ITEMS

The Florida East Coast Medical Association will meet in Daytona Beach, December 4 and 5, 1941 (Friday and Saturday). Dr. J. Ralston Wells, secretary of the organization, in making this announcement, advised that more information concerning the scientific program and entertainment will appear in an early issue of the Journal. Dr. J. S. Stewart of Miami is president.

* * *

Dr. L. L. Lancaster of Bartow spent some time in July, studying at Mayo Clinic, Rochester, Minn.

* * *

Dr. Duncan McEwan of Orlando spent the month of July in Cooperstown, Otsego Lake, New York.

* * *

Dr. Ralph Gowdy of Miami Beach took special work at Mayo Clinic, Rochester, Minn., during the month of July.

Dr. H. A. Johnson of Palatka recently visited his father, Dr. D. N. Johnson of Decatur, Ga. The senior Johnson is now ninety years of age. Dr. Johnson also visited clinics in Atlanta and the Pediatric Clinic in Saluda, N. C., during the summer.

* * *

Dr. Maurice J. Rose of Miami Beach announces the opening of his offices at 420 Lincoln Road, Mercantile National Bank Building. Dr. Rose will limit his practice to obstetrics and gynecology.

* * *

Effective January 1, 1942, members of the Florida Medical Association will not be required to pay state dues while in military service. Members now in service are urged to pay their 1941 dues so they may be carried in 1942 without the payment of dues.

* * *

Dr. Frederick LeDrew of Miami was recently appointed a member of the Committee of Psychiatric Standards and Policies of the American Psychiatric Association. His appointment is for a period of five years. Dr. LeDrew is a Fellow of the American Psychiatric Association.

* * *

Members of the State Association who wish to read papers at one of the scientific sessions at the annual convention to be held in Palm Beach, April 13, 14 and 15, 1942, are urged to file applications at once with Dr. Herbert E. White, chairman of Committee on Scientific Work. Dr. White has announced that no general letter calling for applications will be mailed to the entire membership of the Association, as was done last year. All applications should be addressed to Dr. Herbert E. White, Box 1018, Jacksonville.

* * *

The Florida Board of Examiners in the Basic Sciences will hold its next examinations Saturday, November 1, 1941, at John B. Stetson University, DeLand. All requests for application blanks should be sent to Dr. John F. Conn, Secretary, State Board of Examiners in the Basic Sciences, John B. Stetson University, DeLand. The Florida law requires that all applications be made at least 15 days prior to the date of the examinations. October 17 is the deadline for mailing applications.

Dr. Allen P. Gurganious of Palatka visited clinics in North Carolina during the month of July.

* * *

Dr. Ralph F. Allen and Claude G. Mentzer of Miami attended the meeting of the American Proctologic Association held in Cleveland in June.

COMPONENT COUNTY SOCIETIES

LEON-GADSDEN-LIBERTY-WAKULLA-JEFFERSON

The Leon-Gadsden-Liberty-Wakulla-Jefferson County Medical Society held its quarterly meeting at the Florida State Hospital on the afternoon of July 17. The following scientific program was presented:

"Calcium Metabolism," James K. Fancher, Atlanta, Ga.

"Report on Cases of Rattlesnake Bites," Chas. K. Wall, Thomasville, Ga.

"Shock Therapy in Mental Disorders with Demonstration of Electric Shock," W. G. Miles, Chattahoochee.

"A Year's Eye Service at the Florida State Hospital in Retrospect," F. V. Gammage, Chattahoochee.

Dinner was served at the Florida State Hospital.

* * *

PINELLAS

On Thursday, July 3, the Pinellas County Medical Society held its regular monthly meeting at the Palm Cafeteria, Clearwater. Dr. A. S. Anderson of St. Petersburg, first vice president, presided. The following guests were introduced: Dr. Horace W. Soper, St. Louis, Mo.; Dr. J. J. Guerra, Tampa; Dr. R. D. Thompson, Orlando; Mr. Hayden Kerr, Technician to Mease Hospital, Dunedin; Mr. H. S. Wurtele of Motion Picture Service, Tampa; and Mr. Ned A. Holman of Ortho Products, Inc., Linden, N. J.

The scientific program was in charge of Dr. M. A. Nickle, who introduced Dr. J. Sudler Hood of Clearwater. Dr. Hood presented a case report on "Nephrosis," which was discussed by Dr. Guerra. Dr. N. M. Marr of St. Petersburg spoke on "Health and Housing of Home Defense."

GROWING COMFORTABLY ON S-M-A

Pretty soft life! Nothing to do but eat, sleep and grow in comfort on S-M-A. It's a happy, healthy first year for the S-M-A fed infant because S-M-A promotes normal, comfortable growth.

In addition to fat, carbohydrate and protein of physiological characteristics and proportions, each feeding of S-M-A provides standardized quantities of iron and vitamin A, B_1 and D. Only vitamin C need be supplemented.

Prescribing S-M-A makes life more pleasant for the doctor and the mother, too, because excellent results are obtained simply and quickly.

" " "

Normal infants relish S-M-A . . . digest it easily and thrive on it.

" " "

FOR TREATMENT OF FOOD ALLERGY DUE TO SENSITIVITY TO MILK PROTEIN

A Special Product

HYPO-ALLERGIC MILK

Hypo-Allergic Milk is thermally processed cows' whole milk in which the sensitizing properties of the protein are altered without affecting the caloric value of the protein or whole milk itself.

It may be used the same as cows' whole milk, as a beverage, or in infant feeding formulae where a sensitivity to milk protein is known to exist.

Complete information upon request.

*S-M-A, a trade mark of S.M.A. Corporation, for its brand of food especially prepared for infant feeding—derived from tuberculin-tested cow's milk, the fat of which is replaced by animal and vegetable fats, including biologically tested cod liver oil; with the addition of milk sugar and potassium chloride; altogether forming an antirachitic food. When diluted according to directions, it is essentially similar to human milk in percentages of protein, fat, carbohydrate and ash, in chemical constants of the fat and physical properties.

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

S.M.A. CORPORATION • 8100 McCORMICK BOULEVARD • CHICAGO, ILLINOIS

ABSTRACT DEPARTMENT

Members of the Florida Medical Association who have had articles published in out-of-state medical journals are requested to forward such journals or reprints to Box 1018, Jacksonville, for abstracting in this department.

The Etiology of Nerve Deafness with Particular Reference to Quinine, FORBES, S. B., Tampa, *South. M. J.* 33:613-620 (June), 1940.

Among the drugs capable of producing nerve deafness, quinine would seem to be important, whether used for malaria or as an abortifacient. Moreover, its widespread use in numerous patent medicines for colds, influenza and malaria may be responsible for some cases of nerve deafness. The production of deafness by quinine is not necessarily a matter of dosage, but may be one of individual sensitivity or allergy.

Quinine is capable of producing degeneration of the myelin sheath of the auditory nerve when given in massive doses. In therapeutic doses it has been found to cause degeneration of the spiral ganglion, the stria vascularis and the hair cells, and the basal coil of the cochlea. In the eye, quinine may affect the nerve fiber, the ganglion cell layer and perhaps the inner nuclear layer of the retina. The drug quinidine may be just as dangerous in producing these pathologic changes.

The author presents a series of cases of nerve deafness in which the etiologic role of quinine was not only suggestive but quite suspicious. In four cases of so-called congenital nerve deafness, the quinine causation could be more than inferred. In an analysis of 234 cases of nerve deafness, the author found the history of quinine usage to be four times as frequent as in 832 cases of deafness from other causes, and in the latter group none associated this deafness with quinine usage as did a fairly important percentage of patients among the 234 cases of nerve deafness.

It is important, therefore, to recall the dangers of using quinine, especially in labor, malaria in pregnancy, or as a pre-partum means of increasing uterine tonicity, as the danger of producing deafness in the fetus is considerable. Also, there is danger in the use of quinine and quinidine in conditions in which these drugs are commonly indicated.

Hypersensitivity to Sulfanilamide Following Roentgen Therapy, MARKS, M. B., Miami Beach, *J. Pediat.* 16:503-506 (April) 1940.

Two cases are reported in which exposure to x-ray for therapeutic purposes and exposure to sunlight while taking sulfanilamide caused severe local and constitutional reactions. Both patients had lymphadenitis, were given large doses of sulfanilamide with seeming good results, only to become worse when given therapeutic doses of x-rays. Other investigators have called attention to these phenomena of photosensitization and other sensitizations while the patient is receiving sulfanilamide dosages and have warned against the danger of combining the two.

An Unusual Case of Multiple Appendiceal Lithiasis, SHAHAN, JOHN, Clearwater, *Radiology*, 35:89-90 (July) 1940.

A case is reported in which 23 hard calcified stones were found in an appendix, removed because of digestive symptoms and because of a roentgen diagnosis of appendiceal lithiasis. The largest number of stones previously reported in the literature was 5.

It is interesting to note from added information by the author that later a small brown ureteral stone was removed from the left ureteral orifice; in the original paper it was reported that although the history had suggested ureteral colic, ureteral stones had not been detected on the roentgenograms.

BOOKS RECEIVED

Acknowledgment of books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for review, as expedient.

PLAGUE ON US. By GEDDES SMITH. Here in an attractive form is a beautifully written account of man's battle against the plagues that have attacked him since the earliest times. For twenty centuries men have attempted scientifically to understand and forestall all pestilence. In our advance we have learned that such plagues are carried by insects and rodents. We have learned to know that they are caused by viruses and germs. We have developed vaccines and serums and preventive inoculations. These are the materials from which Geddes Smith has constructed this beautifully written book. He has had the advice of experts in the fields of bacteriology and epidemiology, and he tells the story of man's battle against the plagues in eight chapters, a prologue and an epilogue. Cloth, pp. 365, with illustrations. Price, $3.00. New York: Commonwealth Fund; London: Oxford University Press, 1941.

DR. RANDOLPH'S SANITARIUM
JACKSONVILLE, FLORIDA
REGISTERED A. M. A.

FOR THE CARE AND TREATMENT OF NERVOUS AND MILD MENTAL CASES

Comfortably furnished rooms. Home atmosphere emphasized. Utmost privacy. Tactful nursing. Number patients limited to insure maximum attention.

JAMES H. RANDOLPH, M. D.
Resident Neuropsychiatrist
4422 HERSCHEL STREET JACKSONVILLE, FLA.
Phone 2-2330

JACKSONVILLE
TAMPA ORLANDO MIAMI

SURGICAL SUPPLY COMPANY
"Florida's Surgical Supply House"

HENRY L. PARRAMORE
Pres. and Gen. Mgr.

T. EMMETT ANDERSON
Vice-President

YOUR PATRONAGE GREATLY APPRECIATED

For the local Treatment of Acute Anterior Urethritis
(DUE TO NEISSERIA GONORRHEAE)

SILVER PICRATE* Wyeth

A complete technique of treatment and literature will be sent upon request

*Silver Picrate is a definite crystalline compound of silver and picric acid. It is available in the form of crystals and soluble trituration for the preparation of solutions, suppositories, water-soluble jelly, and powder for vaginal insufflation.

Silver Picrate, Wyeth, has a convincing record of effectiveness as a local treatment for acute anterior urethritis caused by Neisseria gonorrheae.[1] An aqueous solution (0.5 percent) of silver picrate or water-soluble jelly (0.5 percent) are employed in the treatment.

1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," Am. J. Syph., Gon. & Ven. Dis., **23**, 201 (March), 1939.

JOHN WYETH & BROTHER, INCORPORATED, PHILADELPHIA

WOMAN'S AUXILIARY

TO THE

FLORIDA MEDICAL ASSOCIATION, INC.

OFFICERS

MRS. W. J. BARGE, President ..... *Miami*
MRS. F. W. KRUEGER, First Vice-President.... *Jacksonville*
MRS. R. L. CLINE, Second Vice-President..... *Lakeland*
MRS. PAUL KELLS, Corresponding Secretary..... *Miami*
MRS. C. H. MURPHY, Recording Secy.-Treas. ..... *Bartow*
MRS. M. J. FLIPSE, Historian ..... *Miami*
MRS. L. C. INGRAM, Parliamentarian ..... *Orlando*

COMMITTEE CHAIRMEN

MRS. S. M. COPELAND, Press and Publicity.... *Jacksonville*
MRS. P. J. MANSON, Hygeia ..... *Miami*
MRS. RUPERT STOVALL, Public Relations.... *Ft. Lauderdale*
MRS. E. M. HENDRICKS, Legislation ..... *Ft. Lauderdale*
MRS. GORDON H. IRA, Finance..... *Jacksonville*
MRS. T. C. KENASTON, Exhibits..... *Cocoa*
MRS. CLYDE ANDERSON, Archives ..... *St. Petersburg*
MRS. GEORGE C. TILLMAN, Student Loan ..... *Gainesville*
MRS. F. W. KRUEGER, Program..... *Jacksonville*
MRS. R. L. CLINE, Organization..... *Lakeland*
MRS. JOHN H. OWENS, Bulletin..... *Jacksonville*

DISTRICT CHAIRMEN

MRS. G. C. TILLMAN, North Central "B" ..... *Gainesville*
MRS. E. W. VEAL, Northeast "C" ..... *Jacksonville*
MRS. J. C. GRIFFIN, Southwest "D" ..... *Tampa*
MRS. W. C. PAGE, South Central "E"..... *Cocoa*
MRS. HILLARD WILLIS, Southeast "F"..... *Coral Gables*

PRESIDENT'S LETTER

Dear Co-workers:

Greetings!

As your president, I attended the American Medical Convention in Cleveland, and I have a message of vital importance to pass on to each of you.

First, as members of the Medical Auxiliary, we have a specific duty to perform in defense of our country not only in this emergency but in peace time as well. By our active interest in the Nutrition classes which are being sponsored by Federal and State Governments, we can aid in safeguarding the health in our communities. It is our mission to impress on homemakers that the first line of defense is a well nourished people.

Second, we are to use our influence toward keeping the instruction regarding nutrition under the supervision of the Medical Profession.

Third, as the wives of physicians, we are the "guardians of the guardians" and as such we serve our country as surely as if we were in uniform.

We need strength of organization and I make an especial appeal to those members whose husbands are already in Government service that they keep in touch with their home Auxiliaries or attend meetings held in their vicinity. It is important that we realize our personal responsibility and at the same time

FLORIDA SANITARIUM AND HOSPITAL

located on one of Orlando's beautiful lakes and encircled by shaded lawns and orange groves, offers a cheerful, homelike atmosphere that induces rest and relaxation for the convalescent and the nervously fatigued individual seeking a quiet place. Facilities available for check-up and diagnosis, in charge of efficient, registered technicians. The daily routine includes prescribed diet, hydrotherapy and other forms of physical therapy, exercise, and social activities for those able to engage in them, and the best of nursing care by skilled professional nurses. Member of American Hospital Association. Ethical co-operation with the profession. Physicians cordially invited to visit the institution. Write for additional information.

Drawer 3673
ORLANDO, FLORIDA

Brawner's Sanitarium

SMYRNA, GEORGIA
(Suburb of Atlanta)

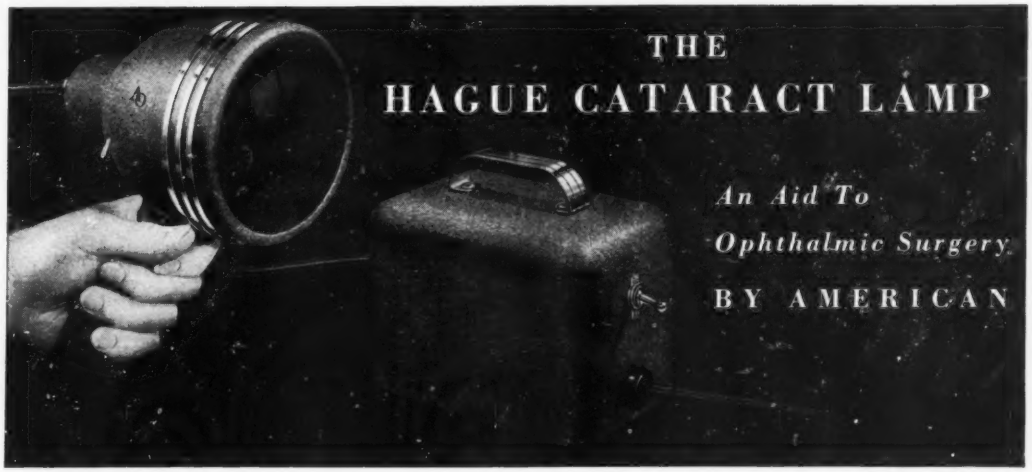
For Nervous and Mental Disorders, Drug and Alcohol Addictions.

Approved diagnotic and therapeutic methods.

Hydrotherapy, Electrotherapy, Massage, X-Ray and Laboratory.

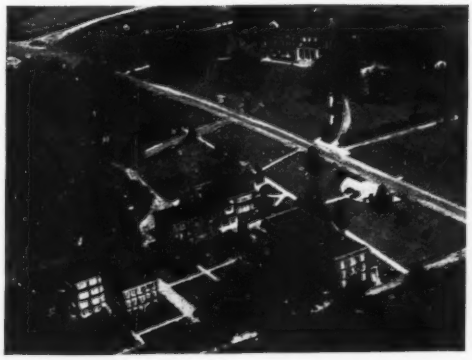
Special Department for General Invalids and Senile cases at Monthly Rates.

JAMES N. BRAWNER, M.D., *Medical Supt.*
ALBERT F. BRAWNER, M.D., *Resident Supt.*



Need for an efficient, safe, lightweight portable ultra-violet lamp resulted in the Hague Cataract Lamp. This new bulb type lamp, developed in collaboration with Dr. Elliott B. Hague, Ophthalmologist of Buffalo, New York, is a welcome advance over the cumbersome, stuttering, noisy, carbon arc lamp. Its easy manipulation and handling increase its value in the operating or examination room.

BY AMERICAN OPTICAL COMPANY



Allen's Invalid Home

MILLEDGEVILLE, GA.
Established 1890
For the treatment of
NERVOUS AND MENTAL DISEASES
Grounds 600 Acres
Buildings Brick Fireproof
Comfortable Convenient
Site High and Healthful
E. W. ALLEN, M.D., *Department for Men*
H. D. ALLEN, M.D., *Department for Women*
Terms Reasonable

IN MIAMI **SUN RAY PARK HEALTH RESORT**
PHONE 4-1659 W. Flagler St. at 30th

ESTABLISHED IN 1928
REGISTERED SANITARIUM

With Cheerful Hotel Atmosphere
For Rest, Convalescent, Chronic
and Acute Medical Cases

Separate Buildings and
SPECIAL FACILITIES
for Mild Mental, Alcoholic
and Narcotic Cases

Graduate Nursing and Dietetic Staff, Resident Physician. Complete Physical Therapy. Five Acres Beautifully Landscaped Grounds. Sports, Recreations, Occupational Therapy.

125 S. W. 30th Court, Miami, Florida

recognize the power which lies in the united effort of an organization devoted to the promotion of the noblest of professions.

May I say to all members that unless we keep informed and keep in touch with the purpose and program of the National Auxiliary we may lose interest in the greater possibilities of our association; therefore, I advise that each member subscribe to the Bulletin which gives "a clear picture of what is going on, what is likely to happen, and what can be done about it."

The Board meeting of the Florida Auxiliary will be held in October. The date has not been set, but all County presidents and State officers will be notified. You are urged to attend this meeting.

May we continue the constructive work of the past and also adjust our program to our country's call.

Sincerely,

(Mrs. W. J.) Ella G. Barge,
President.

ADVERTISERS' NOTES

TRY PABLUM ON YOUR VACATION

Vacations are too often a vacation from protective foods. For optimum benefits a vacation should furnish optimum nutrition as well as relaxation yet actually this is the time when many persons go on a spree of refined carbohydrates. Pablum is a food that "goes good" on camping trips and at the same time supplies an abundance of calcium, phosphorus, iron and vitamins B_1 (thiamine) and G (riboflavin). It can be prepared in a minute, without cooking, as a breakfast dish or used as a flour to increase the mineral and vitamin value of staple recipes. Packed dry, Pablum is light to carry, requires no refrigeration. Here are some delicious, easy-to-fix Pablum dishes for vacation meals:

PABLUM BREAKFAST CROQUETTES

Beat three eggs, season with salt, and add all the Pablum the eggs will hold (about 2 cupfuls). Form into flat cakes and fry in bacon fat or other fat until brown. Serve with syrup, honey or jelly.

PABLUM SALMON CROQUETTES

Mix 1 cup salmon with 1 cup Pablum and combine with 3 beaten eggs. Season, shape into cakes, and fry until brown. Serve with ketchup.

PABLUM MEAT PATTIES

Mix 1 cup Pablum and 1½ cups meat (diced or ground ham, cooked beef or chicken), add 1 cup milk or water and a beaten egg. Season, form into patties, and fry in fat.

PABLUM MARMALADE WHIP

Mix 2/3 cup Pablum, ¼ cup marmalade, and ¼ cup water. Fold in 4 egg whites beaten until stiff and add 3 tablespoons chopped nuts.

86c out of each $1.00 gross income used for members benefit

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION

Hospital, Accident, Sickness
INSURANCE

For Ethical Practitioners Exclusively
(56,000 POLICIES IN FORCE)

LIBERAL HOSPITAL EXPENSE COVERAGE	For $10.00 per year
$5,000.00 ACCIDENTAL DEATH — $25.00 weekly indemnity, accident and sickness	For $32.00 per year
$10,000.00 ACCIDENTAL DEATH — $50.00 weekly indemnity, accident and sickness	For $64.00 per year
$15,000,00 ACCIDENTAL DEATH — $75.00 weekly indemnity, accident and sickness	For $96.00 per year

39 years under same management
$2,000,000 INVESTED ASSETS
$10,000,000 PAID FOR CLAIMS
$200,000 deposited with State of Nebraska for protection of our members
Disability need not be incurred in line of duty—benefits from the beginning day of disability

Send for application, Doctor, to
400 First National Bank Building • Omaha, Nebraska

Ambulance Directory

CARY HAND
32-36 Pine Street
ORLANDO, FLORIDA
Telephone 4181

COMBS FUNERAL HOMES
Ambulance Service
Phone 32101 MIAMI, FLORIDA
Phone 52101 MIAMI BEACH, FLA.

FERGUSON FUNERAL HOME, INC.
1201 South Olive
WEST PALM BEACH, FLA.

III

ly

00

00

00

00